# AIR SAFETY

## HEARINGS

BEFORE THE

## COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

EIGHTY-FIFTH CONGRESS

FIRST SESSION

ON

AIR SAFETY AND CIVIL AIR POLICY

FEBRUARY 6 AND 8, 1957

Printed for the use of the Committee on Interstate and Foreign Commerce

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# CONTENTS

Statement of— Page
Bakke, Oscar, Director, Bureau of Safety Regulation, Civil Aeronautics Board ..... 3, 58, 111
Boyle, Robert P., General Counsel, Civil Aeronautics Administration 86, 126
Dake, Robert E., Chief, General Safety Division, Civil Aeronautics Administration, region IV, Los Angeles, Calif ..... 86, 126
Davis, William B., Director, Office of Flight Operations and Maintenance, Civil Aeronautics Administration ..... 86, 126
Durfee, James R., Chairman, Civil Aeronautics Board ..... 111
Haley, Samuel D., aviation safety agent, Air Carrier Division, Civil Aeronautics Administration, Boston, Mass ..... 86, 126
Keeler, Everett W., aviation safety agent, Civil Aeronautics Administration ..... 86, 126
Matthews, Gordon R., Assistant Chief, Investigation Division, Bureau of Safety Investigation, Civil Aeronautics Board ..... 46
Pyle, James T., Acting Administrator, Civil Aeronautics Administration ..... 86, 126
Thomas, David D., Director, Office of Air Traffic Control, Civil Aeronautics Administration ..... 86, 126
Additional information submitted for the record by—
Civil Aeronautics Administration, letter from James T. Pyle, Administrator ..... 138
Civil Aeronautics Board:
Air traffic rules:
Civil Air Regulations Amendment 60–1 ..... 41
Civil Air Regulations Amendment 60–2 ..... 43
General operation rules, Civil Air Regulations Amendment 43–4 ..... 45
Letter from James R. Durfee, Chairman, transmitting canceled air carrier flights scheduled to depart from LaGuardia Airport, February 1, 1957 ..... 79
Press release of—
February 1, 1957 ..... 37
February 5, 1957 ..... 40
Hiestand, Hon. Edgar W., statement of ..... 168

# AIR SAFETY

WEDNESDAY, FEBRUARY 6, 1957

HOUSE OF REPRESENTATIVES,
COMMITTEE ON INTERSTAE AND FOREIGN COMMERCE,
*Washington, D. C.*

The committee met at 10 a. m., pursuant to call, in room 1334, New House Office Building, Hon. Oren Harris (chairman) presiding.

The CHAIRMAN. The committee will come to order.

This is the first of a series of meetings with the agencies and departments of the Government for the committee to receive reports of the activities of the various agencies that are under our jurisdiction and to permit the new members to get better acquainted with those who are charged with the responsibility of administering the various agencies and departments.

We thought it would be advisable, as has been the policy in the past, to meet with the departments and agencies at the outset of the session.

However, this morning we are primarily interested in two recent air accidents. Later we will have representatives of the Civil Aeronautics Administration and the members of the Civil Aeronautics Board here to give us a brief discussion of their problems and present any reports or recommendations that they may have.

For the past several years this committee has given a great deal of consideration to problems of the aviation industry, specifically to navigation aids, safety, air space use, and other problems.

Last year we had a very serious air tragedy over Grand Canyon. The committee made an on-the-spot investigation of that accident.

Back in Washington we went into it further, and again after the adjournment of Congress in September. The committee filed its report on air space use. This has been called to the attention of the Department.

I am advised by the Chairman of the Civil Aeronautics Board that the Board's report on the Grand Canyon accident will be filed in the very near future. It was ready 2 weeks ago when the Board learned that there was another witness who might have some information. This has delayed their report. That report will be announced in the very near future, so I am informed. Even though we are primarily concerned today with the two recent accidents, we are interested, of course, finally in the overall problem of air safety and what can be done to make flying as safe as possible. It is a subject that has received our attention, as I have said for many years.

At the outset of the last Congress, the committee was called upon to investigate a controversy over air navigation aids as part of our responsibility in the field of civil aviation policy. Apparently that controversy, involving VOR/DME–Tacan, has been resolved, so that the agencies concerned can continue with the orderly development of

a common system of air navigation and traffic control facilities for joint civil-military use. But other pressing air space use problems have not been solved.

The meeting this morning largely will deal with the two recent tragedies. One was the collision of an airliner and a jet interceptor over a suburb of Los Angeles. The other, the loss of an airliner in a snowstorm in New York last Friday evening.

In the course of these hearings we hope to develop information and facts to help prevent similar tragedies.

In our investigation of air-space use during the last Congress, considerable valuable information was developed. Those hearings, by the way, have been printed, and are available to any one interested. We of course realize that we did not complete what we set out to do in the last Congress because of the fact that our program was interrupted by the untimely and unfortunate death of our beloved colleague, the then chairman of this committee, the Honorable Percy Priest of Tennessee.

We note the presence of some of our colleagues this morning who are not members of this committee, but who are interested—interested primarily because the accidents occurred in their areas, Mr. Hiestand and Mr. Holt of California.

Mr. Younger of California is a member of the committee, and he called me soon after the accident in California.

Mr. Derounian, a member of the committee, also contacted me immediately after the accident in New York, and Mr. Lane of Massachusetts, and others. Consequently, it was decided that it was an emergency of such importance that we would call this hearing today.

This morning we have representatives of both the Civil Aeronautics Administration, and the Civil Aeronautics Board. Quite naturally a full investigation of these two recent tradedies will take considerable time and we could only expect this morning, so soon after the accident, a preliminary report. However, the hearing will be followed by others in which we expect to hear Government officials, company representatives, and additional CAA personnel concerned with the handling of air traffic.

We are anxious to develop as much information as possible, as rapidly as possible. If additional legislation is needed, we want to know it. If there is additional action that should be taken administratively we want to know that. If there is anything we can do to help in this field we want to know that, too.

This morning we have Mr. Oscar Bakke, who has just been appointed Director of the Bureau of Safety of the Civil Aeronautics Board and Mr. Gordon R. Matthews, the Assistant Chief of the Investigation Division of the Civil Aeronautics Board, who will be our first witnesses.

They will be followed by Mr. James T. Pyle, the Administrator of CAA.

Mr. Bakke appeared before this committee last Congress in connection with our overall basic study of airspace use. At that time he was a Deputy Director of Safety Regulation. He has been moved up a step, effective next week, I believe, and I want to join the others in congratulating him. It indicates the good work that he has done is recognized by those responsible for the action.

We are glad to have at this time Mr. Bakke, newly appointed Director of the Bureau of Safety of Civil Aeronautics Board.

## STATEMENT OF OSCAR BAKKE, DIRECTOR, BUREAU OF SAFETY REGULATION, CIVIL AERONAUTICS BOARD

The CHAIRMAN. Mr. Bakke, I have had the understanding with your chairman that as you appear this morning our problem is to be concerned with these two accidents.

I understand that you have a report to make.

Mr. BAKKE. Yes, sir; I am able to advise the committee in fairly general terms concerning the nature of the accidents, the progress of the investigation, and the action which the Board has seen fit to take as a result.

The CHAIRMAN. We are interested in two things this morning. Those are: What happened, as far as you are able to learn at this time and, number two, what is being done about the problem.

Mr. BAKKE. Yes, sir.

On Thursday of last week at approximately noon, Pacific time, the Board was advised that there had been a collision involving a Northrop F–89 Scorpion and a DC–7B. The F–89, it was determined, was the property of the United States Air Force, which has been operated by Northrop under bailment, for the purpose of testing some radar equipment which had recently been installed. The DC–7B was of very recent manufacture. It had been scheduled for delivery to a United States air carrier. The airworthiness certificate of the DC–7B had not as yet been issued so the DC–7B was being operated by Douglas, the manufacturer, under a manufacturer's special flight authorization which permitted what is known as production flight testing, in order to determine whether the airplane did, in flight, meet all of the specifications upon which the aircraft certification was to be predicated.

The Board, under its authority in title 7 of the Civil Aeronautics Act, initiated an investigation into this accident immediately.

Mr. Philip Goldstein of our Santa Monica office was the investigator in charge, the accident having occurred in his area. We immediately arranged for investigators from other regions of the United States to proceed to Santa Monica in order that the investigation may be accomplished as expeditiously as possible.

Five of our technicians from Washington also proceeded to Santa Monica to assist in some of the special aspects such as the examination of structure, and powerplants.

I, myself, arrived in Los Angeles on Saturday morning last week.

As the committee will doubtless understand, the Board's investigation prior to the public hearing will require from 3 to possibly 5, in some cases 6 weeks of very intensive investigation of the aircraft parts, the remains of the 2 aircraft, in order that the Board be certain as to all of the causative factors which require our attention, and I would urge the committee at this time not to be unduly impatient concerning the progress of the investigation. This is a time-consuming operation which I believe that the committee would wish the Board to insure is done properly.

To be done properly, we must have sufficient time to examine every aspect, both of the design of the aircraft, including its structure, and all of the operating procedures that might be involved.

The information that I shall give concerning the accident is of a preliminary nature and some of it will be rather general. At the present moment, there are various working groups that are gathering more precise information and I trust that it will be possible for the Board to complete the picture somewhat more precisely within the very few weeks to come.

At the scene of the accident there were a total of between 80 and 90 technicians, engineers, specialists of various sorts, available to the Board to assist in the investigation. The Board itself had approximately 10 people. This is typical. The Board in its accident-investigation procedure must rely very heavily on the resources and the skills that are available in the area of the accident in order that the investigation be prosecuted as completely and as expeditiously as possible. These people were representatives of Northrop, of Douglas, and of the CAA, in addition to personnel of the Board's Bureau of Safety Investigation.

There were a number of groups which were formed, each of them under the leadership of a technician of the Board's Bureau of Safety Investigation. There was a structures group, for instance. As a matter of fact, there were 2 such groups, 1 of which dealt with the investigation of the wreckage of the F–89, and the other of the Douglas.

Similarly there was a powerplant group which was responsible for the inspection of the powerplants of both aircraft. There were 2 witness groups, later expanded to 4 witness groups, whose responsibility it was to track down the many hundreds of witnesses to the accident in order to determine which of them would be able to contribute most effectively to the investigation.

An operations group is also active, whose responsibility is to determine the status of the certification or the airworthiness acceptability of the two aircraft, and to determine the procedures for flight testing which are in use by both Douglas and Northrop.

It was determined that both aircraft had before the accident been conducting flights to the east and north of the Greater Los Angeles area. In the area, so far as we were able to determine on the basis of our preliminary information, in the vicinity of Ontario, so far as the Douglas is concerned, and in the vicinity of Palmdale so far as Northrop was concerned.

As I indicated earlier, the Douglas was of recent manufacture. A flight crew consisting of two pilots, a flight engineer, and a radio operator, flew the airplane into the Ontario area for the purpose of making certain records of instruments of the operation of components of the aircraft, performing such functions as, for instance, timing the rate of retraction of the gear, and the rate of extension, the rate of extension of the landing flaps, and rate of retraction of the landing flaps, the rate at which the propellers feather, and things of this type.

There were no unusual maneuvers, for instance, that were contemplated. There was no diving, no maneuvers which could reasonably be termed acrobatic. Most of the operations were straight and level flying.

There was, however, a great deal of recording to have been done. Our preliminary information indicates that the principal burden of recording the instrument indications and the timing of the various components in their operation fell on the flight engineer.

The precise procedures that are followed in flight are being checked further, and we hope to have a more complete report in this respect in the few days to come.

The Northrop was 1 of 2 aircraft which had left the Northrop plant earlier in the morning for the purpose of checking a radar system which was installed in both aircraft. The procedure for checking this system calls for one of the aircraft to serve as a target aircraft and the other as a tracking aircraft.

A series of maneuvers are flown, one in particular, the maneuvering used at the time of the accident——

The CHAIRMAN. When you refer to the Northrop, you mean the jet, the Air Force jet?

Mr. BAKKE. Yes, sir; the Northrop F–89 Scorpion aircraft.

The maneuver in use at the time of the accident was known as a scissors intersection. The two aircraft crisscrossed their respective flight paths at some distance from one another, after the tracking aircraft had identified the target aircraft, and the radar operator locked on to the target.

In this particular case the radar operator——

The CHAIRMAN. So we can keep up with you, is that a third airplane you are talking about now?

Mr. BAKKE. No, sir. Each of the two F–89 aircraft are equipped with radar, which is a fire-control system——

The CHAIRMAN. That is what I am talking about. You have three airplanes in the air.

Mr. BAKKE. Including the Douglas; yes, sir. There are three.

The CHAIRMAN. That is what I wanted everybody to understand.

Mr. BAKKE. At the moment, sir, I was describing the maneuvers of 2 Northrop F–89 aircraft as a separate series of maneuvers, and I had hoped in just a moment to relate the maneuvers of those 2 aircraft to that of the DC–7.

The CHAIRMAN. We didn't want to get confused. It was not the DC–7 that was maneuvering back and forth across?

Mr. BAKKE. Correct, sir.

Mr. HALE. The two military aircraft were both of the same type?

Mr. BAKKE. Yes, sir. They were both F–89 aircraft.

Shortly before the accident the two aircraft had been northeast of the city of Los Angeles, maneuvering their aircraft in such a way that they progressed toward the southwest and in the vicinity of Los Angeles.

During this maneuver both aircraft were at the same altitude, 25,000 feet, and they were in continuous communication with each other.

The tracking aircraft during this maneuver was the aircraft not involved in the collision. The radar operator of this aircraft identified and locked on to the target aircraft, which was the aircraft which was involved in this collision.

The CHAIRMAN. What do you mean by locked on?

Mr. BAKKE. By locked on, I mean a process whereby the radar operator who, after having established that a particular echo, or blip,

as it is called, is the target in which he is interested. So he adjusts the equipment so the radar interrogates only that blip, and it no longer searches. It no longer sweeps a large area to search for other targets. It now concentrates on this particular target and interrogates it only.

In order to determine whether the radar is properly locking on to a specific target, the two aircraft maneuver with respect to one another, and throughout these maneuvers the radar equipment should continue to lock on to this particular target. And these maneuvers are to determine whether the equipment does, in fact, perform this function within satisfactory tolerances.

This maneuver was performed, as I indicated earlier, while the aircraft was maneuvering in a southwesterly direction. As they approached the city of Los Angeles, the maneuver was stopped and the process was reversed. The aircraft which was formerly the target aircraft then became the tracking aircraft, and the aircraft which was formerly the tracking aircraft became the target aircraft. The target aircraft was then north of the tracking aircraft by about 18 miles.

The aircraft which was now the target aircraft climbed to an altitude of 33,000 feet, making a vertical separation of 8,000 feet between them. This was in order to determine whether with this difference in altitude the radar was still capable of locking on satisfactorily and otherwise performing its functions within required tolerances.

While this was going on the two aircraft were still in communication.

Now, the tracking aircraft is the control aircraft for the purpose of initiating and terminating the maneuvers through which both aircraft are to fly. The maneuver was begun—the last series of maneuvers—was begun with the tracking aircraft on a heading of 135°. He was, as was understood to both pilots, to initiate a 90° turn to the left to a heading of 45°. This turn was to be accomplished at 250 knots indicated airspeed, or 380 knots true, at exactly 30° of bank, which was at that airspeed what is known as a one-half rate turn, or a rate of turn of 1½° per second.

Now, this 90° turn was, therefore, to take exactly 1 minute. At the end of 1 minute, plus or minus 5 seconds, the aircraft was to roll out on a heading of 90°, plus or minus 2°. Excuse me. He was to finish the 90° turn to a heading of 45°, plus or minus 2°. And during the turn he was to maintain precisely 30° of bank and was to maintain an altitude of 25,000 feet plus or minus 50 feet.

Now, this is, I would say, an unusually high order of precision.

Mr. HALE. Mr. Chairman, may I interrupt?

How do you know all this? I mean by that, have you this information from the orders given to the planes before they took off?

Mr. BAKKE. Our sources of information are at least two. The pilot of the second Scorpion is, of course, alive and is able to testify as to the communications between the two aircraft. Much of this information was relayed to the second aircraft by the pilot who was involved in the accident.

Secondly, the radar operator of the aircraft involved in the accident is also alive. He has been able to furnish us, or was able to the day of the accident, to furnish us with some preliminary information. However, he was in a state of serious shock, and his physician forbade us

to question him at length during the days immediately following the accident when he was hospitalized. We hope to have access to the radar operator very shortly, and we believe that he can contribute much further to the investigation.

I should say there is a third source of information, and that is the procedures which are used for the conduct of this type of test activity. Those are well understood by the pilots concerned and they have been explained to us at length.

The CHAIRMAN. May I interrupt? If we let the witness proceed with the description of what happened, then we can ask questions after he concludes.

Proceed with the description of what happened.

Mr. BAKKE. I stated that the tracking aircraft was the control aircraft. By that I mean that when the maneuver was to start he was to indicate by air-to-air radio the moment he initiates his left turn from a heading of 135° to a heading of 45°.

That is necessary because at precisely that moment the target aircraft is to initiate a turn to the right of 90°. This, then, has the two aircraft criss-crossing in front of each other.

The pilot of the tracking aircraft indicated by radio that he was ready to begin this maneuver, and he had transmitted the command substantially as follows:

"Begin your right turn now," with a delay immediately before, and an emphasis upon the word now.

This is a rather commonly used device in aeronautical communications to sound the beginning of a maneuver. When the word now was sounded, both aircraft entered into their respective turns. The target aircraft to the right, and the tracking aircraft to the left.

The normal procedure is for the tracking aircraft to use the word "ready" as they approach the required heading within 2°. The word "ready" signifies that the pilot should begin maneuvering the aircraft to straight and level flight.

By the time the wings are level the aircraft will then be precisely on the required heading and at that moment the pilot of the tracking aircraft uses the word "on." So that as the aircraft banks toward the desired heading you would hear "ready," "on." Excuse me. That expression should be "steady," "on."

In this particular instance, the pilot of the tracking aircraft had transmitted the words "Begin your right turn," "now." And the pilot of the target aircraft immediately rolled into the 30° bank to the right at 33,000 feet, 18 miles north of the tracking aircraft, and he maintained that angle of bank until he reached his required magnetic heading.

At that point he waited for the tracking aircraft to give the command to roll out. But the command never came, because during the left turn to a heading of 45°, the collision occurred.

Now, the Douglas had been conducting——

The CHAIRMAN. Before you start with that, the man in the target plane, the pilot of the target plane did not see the collision?

Mr. BAKKE. No, sir. The Douglas aircraft, to the best of our knowledge, had been operating in the vicinity of Ontario, Calif., and had been conducting much of the tests which I described earlier. Precisely how much we do not know. Not all of the flight documents were recovered as of the time I left Los Angeles. There were several

reports, however, that were made with a private radio communications facility at Santa Monica, and we have some knowledge of the progress of the flight. At 8 minutes before the accident, the flight reported over Ontario at 25,000 feet. It was then proceeding, apparently, in a westerly or northwesterly direction. When north of the city of Los Angeles, it apparently turned to a heading of south, or southwest. As best we can determine, it was also maintaining flight at 25,000 feet, there having been no reason for the DC–7 to leave that altitude.

While the DC–7 was proceeding in a southerly or southwesterly direction, the Northrop was approaching it from its right in a southeasterly direction. When approximately 2½ miles to the right and ahead of the DC–7, it entered into the left bank which I described earlier. This left bank was maintained almost to the completion of the 90° turn, at which point the two aircraft collided.

The Northrop collided with the left wing of the DC–7, cutting off approximately 7 feet of the left wing tip and outer wing panel and the aileron.

Preliminary investigation indicates a strong possibility that the aircraft also collided with the left side of the empennage, the left horizontal stabilizer, and possibly the vertical stabilizer. We know that the empennage left the DC–7 in flight, and it appears at this time likely that this was a result of collision.

I would, of course, like to interject at this moment, and I trust that the committee will bear with me when I stress again, that these are preliminary indications.

The DC–7 fell to the earth in a very steep dive and landed in a schoolyard in the Pacoima Junior High School. The Northrup F–89 continued in approximately an easterly direction and crashed in a rather remote area in a canyon approximately 5 miles from Pacoima.

Our investigators proceeded to the scene of the wreckage and made a preliminary record of the disposition of the wreckage, and from this preliminary investigation determined the impressions which I described to you concerning the nature of the collision. In addition there were many parts of both aircraft which had separated from their respective aircraft in flight, and had fallen over a wide area. The Board urged by press and radio that people in the area who had located parts that had fallen from the airplanes advise the Board of the whereabouts of these parts in order that we might determine more precisely the nature of the destruction of the aircraft in flight. This also was of considerable assistance, or will be, in locating precisely the geographic point at which the collision took place.

The cooperation of the citizens of the area has been very gratifying in this respect, I might say.

After the investigation of the wreckage, the distribution of the wreckage, and the nature of the damage at the scene, all of the parts of the Douglas aircraft were removed from Pacoima and were trucked to one of the Douglas warehouses at Culver City. There an area was impounded by the Board and the wreckage was placed under guard.

Our investigation team is in the process of identifying all of the bits and pieces of this wreckage and laying them out in their proper locations in the warehouse in order to confirm the angles of impact of the aircraft involved. The removal of the F–89 was a somewhat more difficult chore because of its relative inaccessability. But this was to

have begun on Monday of this week. I am not certain at this time whether all of the wreckage has been removed from Culver City or not.

We have had some excellent cooperation from the Air Force and from Northrop as well, who consented to the removal of the F–89 to Culver City in order that the investigation of the parts might take place under the same roof and thereby expedite our investigation.

This, Mr. Chairman, is about the extent of the investigation at the moment. As a result of the accident, there was a great deal of interest and concern demonstrated concerning regulations of the Board and the policy of the Federal Government generally with respect to the flight testing of aircraft. This has been a matter of considerable concern and interest and activity in the various agencies of the Federal Government concerned for many years.

In 1947 a great deal of attention was given the question of the conduct of flight tests by aircraft manufacturers, and certain agreements were reached concerning the necessity for conducting certain types of flight tests in sparsely settled areas or areas of low air-traffic density.

Since 1947 there have been several occasions, in the Air Coordinating Committee and in other interdepartmental or coordinating mechanisms of that sort, to consider the advisability of relocating airports or amending procedures for the flight testing of aircraft, and so on. And there have been instances in which for instance, the Airport Use Panel has recommended the relocation of airports or otherwise taken action to insure that these procedures, these flight-testing procedures, are conducted in such a way as not to create any hazard, especially for persons on the ground or other persons in flight.

There exists, therefore, a rather substantial body of policy which indicates an attempt by the Federal Government to insure that hazardous flight testing will not be conducted, or flight testing in which there is any form of hazard whatever will not be conducted, so as to jeopardize the safety of the third persons.

On the civil side, for instance—and I use this merely as an illustration—the Administrator of Civil Aeronautics is authorized under part 1 of the Civil Air Regulations to issue special flight permits. The Administrator did issue a special flight permit for the Douglas DC–7 in this instance. This was the permit which I described earlier as the manufacturer's special-flight permit.

Printed on this permit there are operating limitations which the regulation authorizes the Administrator to specify as a part of this permit, and the operating limitations clearly state that the flight of the aircraft for which this special-flight permit is intended shall not be accomplished over congested areas or areas of high traffic density, except for the purpose of landing and taking off.

We are not precisely aware at this time of what limitations were applied to the Northrop aircraft.

Part 60 of the Civil Air Regulations is also explicit with respect to the conduct of hazardous maneuvers. Unusual maneuvers are prohibited over large assemblies of persons or over congested areas. I use these as illustrations of the devices which had been employed in the past to insure against the jeopardy to the safety of persons on the ground.

However, because of the great concern which has been demonstrated in recent weeks, the Board yesterday adopted an amendment

to part 60 of the Civil Air Regulations, which treats expressly with the flight testing of aircraft. This amendment is known as Civil Air Regulation Amendment 60–1. It was adopted yesterday and becomes effective on the 20th of February.

I might state in passing that although the Board adopted this regulation without prior notice, as is indicated in the body of the regulation itself, it did so for good cause shown, but nevertheless solicited the comments of interested persons concerning views as to the effect that this regulation might have on their respective operations, and requested that these comments be made available to the Board not later than the 22d of March. The rule nevertheless becomes effective on the 20th of February.

This, Mr. Chairman, concludes the rather general and, I am afraid, somewhat unprecise description of the accident. But I should like to repeat again that, in the very few weeks to come, the Board will have a more complete report of the accident, and all of the causative factors which it involves, to make available to this committee.

The CHAIRMAN. Mr. Bakke, you have given a very good description of the unfortunate tragedy over Los Angeles. Is it your intention to describe or report on the New York incident, or do you have someone else to do that?

Mr. BAKKE. Mr. Chairman, the incident at New York occurred the evening that I was to leave for Los Angeles. Mr. Gordon Matthews, of our Washington office, who is the Assistant Chief of the Investigation Division, has been in direct contact with the investigators at New York. And I would suggest that the committee hear his description of that accident. I think he could give a far more complete account that I.

The CHAIRMAN. Well, I am sure there may be some questions of you regarding the California incident. We did want to get to both this morning, if possible.

Mr. Williams, do you have any questions?

Mr. WILLIAMS. Only one, Mr. Chairman. Mr. Bakke, I am sorry I missed the first part of your testimony, but I didn't get a full description of this accident, so I will have to read it from the record. However, you indicated that one of the planes was executing a precision turn, a 90° turn to the left, and had almost completed that turn at the time it collided with the other plane. Do you know approximately what direction those two planes were following, what headings they were following at the time of the accident?

Mr. BAKKE. It was very close to head on. As I say, it will be necessary for us to lay out the wreckage and make some more precise measurements before we can be certain, but it was very close to head on at the time of impact.

As I indicated before, the 2 were on intersecting paths close to 90°. The Northrop aircraft then turned and had not quite completed a 90° turn when it struck the DC–7, at the time of impact, almost head on.

Mr. WILLIAMS. At approximately what speeds were the respective planes traveling?

Mr. BAKKE. The DC–7 at something better than 300 knots true. The Northrop at 380 knots true.

Mr. WILLIAMS. The rate of closure of course would be rather rapid.

Mr. BAKKE. We have estimated approximtely 680 knots.

Mr. WILLIAMS. That is all.

The CHAIRMAN. Mr. Wolverton.

Mr. WOLVERTON. Mr. Chairman.

Did each of these three airplanes that figured in this accident have clearance from any control officer for the operation that they were engaged in?

Mr. BAKKE. No, sir. They did not. The weather report available to us indicates that the visibility at the time of the accident, the surface visibility, was reported at 50 miles. The flight visibility was considerably in excess of that. The sky was clear. There were no clouds at all. Under those conditions no clearance is required from any authority and none was in this instance, to our knowledge.

Mr. WOLVERTON. Well, it has been my understanding that before flights would start there would be a flight plan filed that would fix not only the route but the height at which they would fly, all of which would, of course, be to promote safety. When you have three planes go up in the same vicinity that are criss-crossing, and going this way and that way, do you mean to say that they get no permission from anybody to operate in that manner in that particular locality?

Mr. BAKKE. Not with respect to their operation at those altitudes. At all airports where any aircraft traffic control is exercised, it is required to have prior permission to use the airport for the purpose of takeoff and, of course, eventually, landing. But there is no clearance required under these conditions for operation at those altitudes.

Mr. WOLVERTON. Is there no limitation as to what height they should operate or in what direction or how far?

Mr. BAKKE. No limitation——

Mr. WOLVERTON. In other words, from what I understand of what you have said, there is no permission necessary or granted except for takeoff and landing from airports where traffic-control service is provided.

Mr. BAKKE. Correct, sir.

Mr. WOLVERTON. What they did after they got into the air was on their own, so to speak.

Mr. BAKKE. This would not be entirely correct, sir. There is no clearance required nor was there any granted from any authority other than the manufacturers themselves. Air-traffic control played no part in approving or otherwise clearing the proposed operations. They were, of course, subject to procedures and instructions of the manufacturers of the aircraft. There are policies of the manufacturers with respect to the areas within which such flight testings are to be conducted.

As an example, there has been defined a rather large area within which all flight testing is to be conducted by manufacturers located in the Los Angeles area. This area has the same dimensions as the western defense area. And the reason for the designation of these areas is principally to facilitate the identification of aircraft for defense purposes. There are also policies of the manufacturer with respect to the general area in which such flight testing should be accomplished in order to carry out the sense of the agreements which I described earlier had been accomplished in certain interagency or interdepartmental activities, like the ACC.

These, however, we have not been able to establish precisely. We are aware of some general policies. Some of the manufacturers indi-

cate that they want their people to perform flight testing in the Palmdale area. Some have not defined precise geographic coordinates identifying the Palmdale area but are rather general in their instructions. Some are more specific.

We have not been able to identify precisely what the Northrop instructions are with respect to the geography of the problem, or the Douglas instructions.

Mr. WOLVERTON. Did all three of these planes take off from the same airport?

Mr. BAKKE. No, sir; they did not.

Mr. WOLVERTON. Was there any correlation between the separate airports from which they took off?

Mr. BAKKE. None is required and none to my knowledge was accomplished.

Mr. WOLVERTON. I hestitate to express an opinion, but when I realize the care that is observed in the taking off of planes and the landing of planes, and their flight plans, it is hard for me to understand how you permit three planes to go up in the air without any knowledge of each other's intentions and where they would go, and what height they would fly, or when they would turn, or where they would go forward, or when they would come back, or the general area which they would cover. I think this lends itself to accidents.

Was there no opportunity for communication between these different planes as they were in the air? Was there any means they had of ascertaining the proximity of the other planes?

Mr. BAKKE. So far as communications are concerned, the aircraft were using at the time and immediately before the accident, different frequencies. Whether they had any common frequencies, I do not know. The investigation has not as yet determined. We do know that they were using different frequencies at the time.

Mr. WOLVERTON. You spoke of a distance of 2 miles or 2½ miles that separated 2 of these planes at one point in your testimony. Were they within sight of one another?

Mr. BAKKE. Yes, sir. At the time that the turn of the Northrop aircraft which I described earlier was initiated, it is our judgment that the airplanes were so located with respect to each other that they could physically have been seen.

Mr. WOLVERTON. And for how long a distance could they have been observable by one another?

Mr. BAKKE. Within the physical capabilities of the human eye, for about a minute.

Mr. WOLVERTON. How fast were they traveling?

Mr. BAKKE. At the time of impact, the rate of closure was 680 knots, approximately. This, however, changed of course. As the turn progressed the rate of closure was considerably less while the two tracks were intersecting at 90°. And the rate of closure increased as the turn progressed reaching its maximum apparently at the time of collision.

Mr. WOLVERTON. In whatever way you look at it it would seem as if the distance that separated them would be covered in a flash of an eye.

Mr. BAKKE. Not quite that fast, sir.

Mr. WOLVERTON. A reasonably short period of time.

Mr. BAKKE. Sir, at 680 knots, if I remember correctly, they would be traveling at somewhere around 1,100 feet a second. At the rate of closure which existed at 90°, it would be approximately half that. Somewhere around 500 feet a second.

Mr. WOLVERTON. Maybe I overstated it with a flash of an eye when you say they traveled 1,100 feet in a period of a second. But going as fast as they were, and without any knowledge that this other plane was in the air, or the particular course that they intended to pursue, it would seem to me very easy to understand how they could come together. There are many questions I would like to ask but there are other members who have that same desire.

Your testimony leaves me with this impression: That is, of the great care that is exercised when planes take off and land, as compared to this where they go hit or miss through the air at terrific speeds, without one knowing what the other one is doing, or where it is going or where there is a turn. In other words, that it was just a sort of a hit or miss proposition. It would seem to me there didn't appear to be a great deal of concern as to what they would do after they got into the air. It rather surprises me that they could take off in the way you say without some control or arrangement among them, so they would know what they were doing.

I am frank to say—I hesitate to express an opinion—that it is not surprising to me that there was an accident under the circumstances.

The CHAIRMAN. Mr. Mack.

Mr. MACK. Mr. Bakke, I would like to commend the Board on the action that has been taken to prohibit test flying over heavily populated areas. This order more adequately protects the people on the ground. However, it seems that these airplanes will collide regardless of where they are, and the Grand Canyon crash very tragically and very vividly drove that home to us.

I was just wondering what steps, if any, you have taken to protect the crew and to contribute to safety in the air as well as avoiding mid-air collisions regardless of where they might be.

Mr. BAKKE. So far as the question of high-altitude operations are concerned, we are very close to the first, I might call it, formative action in the amendment to the regulations, to set in motion a high-altitude area control concept.

As of the moment the airways and other controlled airspace designated by the Administrator, begin at the surface in the case of control zones, and 700 feet in the case of airways——

Mr. MACK. May I interrupt you. You are speaking just of controlled traffic now; is that true?

Mr. BAKKE. Yes. What I was going to describe was the proposed action on the part of the Board so far as the regulatory aspect of the problem is concerned, and the Administrator so far as the facilities and procedural aspect is concerned, to increase the extent of positive control in high-altitude operations.

Mr. MACK. I think most of us understand that, that would be limited to the airways and to normal routine traffic. Isn't that correct?

Mr. BAAKE. No, sir. My explanation was to have been one in which I was to point out that at the moment controlled area is limited to airways designated by the Administrator and control zones.

Mr. MACK. Excuse me for interrupting.

Mr. BAKKE. But what we are now proposing is that all airspace above a given altitude—and our tentative thinking is 24,000 feet—shall be controlled airspace. And that all traffic in that airspace which is not capable of seeing and avoiding other traffic shall be subject to air traffic control.

We have had since shortly before the Grand Canyon accident a group coordinating the activities of the Board and the Administrator very actively pursuing both the facilities aspects of the problem and the regulatory aspects. And this group is now just on the verge of finishing its work.

Our immediate target is by the 1st of April to have completed the necessary definition of policy and the regulations that are required to set this in motion.

Now, implementation, that is the provision of the facilities, and the physical wherewithal to do the control job, is something which I understand the committee will hear of Mr. Pyle later.

I do not think it proper that I discuss this at any length. On that part of the problem, I should like to say or, rather, to repeat generally, that we are now about to start with the formal definition of policy and regulation to enable the beginning of an area control concept at high altitudes. This would in effect wipe out the limitations of the airways themselves and will extend it to all airspace the control capabilities of the Administrator. There will be as much control exercised in that area as the Administrator has the capability to exercise. He will no longer be denied the authority to control by reason of the absence of the designation of controlled airspace. This we think takes care of or will take care of, at least in part, the problem to which Mr. Wolverton directed his attention.

High airspeeds, that is, these unusually high airspeeds are typically a high altitude problem. We think that it needs solution first at high altitudes. In due course we can ask the question whether we can bring this 24,000-foot floor down to lower altitudes, but this will require a knowledge, a more complete knowledge, of what our capabilities are to perform the air traffic control function. This will occur in due course.

The second action that I would like to describe to you——

The CHAIRMAN. This one you have just described is part of the 3-year plan?

Mr. BAKKE. Yes, sir. That is correct, sir.

The second action that I should like to describe is one that is not directly related to high altitude operations nor directly related to the accident to which we referred, but is related to the question of the avoidance of collision and separation of aircraft generally.

Today the Board adopted an amendment to part 60 and part 43, authorizing the Administrator to designate high density area, and which also added to part 60 certain additional restrictions to operations in high density areas.

Now, the experiment which was conducted at Washington, D. C., for about a year and three-quarters, which terminated in July of 1956, was described at length to your committee last fall. This experiment resulted in the development of certain proposals to amend part 60 which were published as notices of proposed rulemaking by the Board last year.

The Board was requested to hear oral argument concerning these proposed amendments and oral argument was heard on the 14th of January of this year. As a result, the Board has been able to dispose of all of the remaining issues and has today adopted, in substance, the rules which were proposed and which were described to the committee last fall.

These we believe will serve to avoid much of the hazard of high density traffic in certain areas which the Administrator may choose so to designate.

These, I think, are the two principal activities or at least the two activities which come most nearly explaining what the Board has done in the matter you discussed, Mr. Mack.

Mr. MACK. I made a very simple suggestion when we were having our hearings last year. I was just wondering, couldn't that have been included in your move yesterday? That was that they should be required to carry observers on all of these test flights. I would think that you would have the authority to include that, if you deemed it advisable.

Mr. BAKKE. I believe we did accomplish that. There may be some question as to whether it was done sufficiently explicitly, but I wonder if I could point out to you the manner in which the Board expressed precisely the same objective.

There was an amendment adopted which added to the note following 60.12, which deals with careless and reckless operation, the following language:

> Furthermore, flight activities requiring such crew preoccupation with cockpit duties as to prevent adequate vigilance outside the cockpit for the purpose of collision avoidance shall be evidence of careless or reckless operation unless some provision is made which adequately compensates for such reduced degree of vigilance, such as use of a competent observer in the aircraft, a chase aircraft, or other appropriate arrangements.

I believe that this expresses precisely the same objective which you indicated.

Mr. MACK. That is in line with the suggestion that I made.

Mr. BAKKE. And this was adopted as an amendment to the Civil Air Regulations yesterday.

Mr. MACK. Now, in the California crash, there was no indication on the part of either pilot that they had seen the other plane prior to the impact. Is that true?

Mr. BAKKE. The pilot of the F–89 was apparently disabled as a result of impact. The evidence indicates that the F–89 collided with the DC–7 and that the point of collision was almost in the center of the nose of the F–89. It split the radome and crushed the entire nose of the aircraft, a large portion of which separated from the F–89 in flight. It is very likely that the F–89 pilot was either killed or disabled in flight.

There was no communication from him prior to impact that indicates he at any time saw the DC–7.

The radar operator also, in the same F–89, testified that momentarily, at the moment of impact or immediately prior to the moment of impact, he saw a large grey flash out of the left side of the canopy which was presumably the DC–7.

We had an excellent tape recording of communications from the DC–7. There was no communication from the DC–7 until after the

collision had occurred. The tape then records some comments made by the copilot and the radio operator aboard the DC–7 after the collision had occurred.

They were aware that there had been a collision, and they were aware that the collision had been with a jet.

The copilot, Mr. Twitchell, makes the observation: "Poor jet, too."

He knew that it was a jet aircraft. Whether it was because it had been possible for him to identify the aircraft as it fell after the collision or whether he had seen it before the collision is not apparent.

Mr. MACK. I understand that many of the airlines were going to install a proximity warning indicator of some kind, and I presume that that program has not gotten underway.

Mr. BAKKE. Well, sir, I would say that the program had gotten underway, very ambitiously, but it has never, you might say, reached its destination.

My understanding is that the program has been abandoned, that the manufacturer have concluded that the operational requirements cannot be satisfied at this time.

Mr. MACK. So the program has been abandoned, you say?

Mr. BAKKE. That is my understanding, sir.

I would suggest you would wish to confirm this. It is my understanding.

Mr. MACK. Mr. Chairman, I do have some other questions that I would like to ask Mr. Bakke, but I want to give the others an opportunity.

The CHAIRMAN. Mr. O'Hara?

Mr. O'HARA. Mr. Bakke, as I understand from your testimony, the DC–7B was operating at about 25,000 feet.

Mr. BAKKE. Yes.

Mr. O'HARA. And that it was generally speaking, on a level course of flight. It wasn't changing its direction, but was pursuing a direct, level flight at that point. Is that correct?

Mr. BAKKE. Yes, sir.

Mr. O'HARA. And, from what you have described of the atmospheric conditions, visibility was perfect so far as the pilots were concerned. Is that correct?

Mr. BAKKE. Yes, sir.

Mr. O'HARA. Frankly, I was somewhat amazed, as Mr. Wolverton was, by the fact that these manufacturers take off and have these procedures of testing without any prearrangement between them or any air control at all, because it is obvious from what happened that there is just as liable to be a collision at 25,000 or 30,000 feet as there is at 7,000 or 8,000. Is that not true?

Mr. BAKKE. Yes. The altitude has no particular significance. It might as well have been any other altitude; yes, sir.

Mr. O'HARA. So that it is highly important hereafter that these testing procedures be taken under certainly a much stricter regulation between the manufacturers than has been in the past. Is that not true?

Mr. BAKKE. Sir, the operations group, which I described as a part of the accident investigation, is pursuing this very, very intensely. We are examining the question of whether it is indeed possible for such coordination to take place. It is my own judgment that our

present air-traffic-control machinery does not possess the capability of providing positive control for the kinds of operation that were involved here. Whether it would be possible for the manufacturers to provide it on their own is a matter which we have not gone into very thoroughly. We do intend to. We intend to raise precisely this question in the course of our investigation.

Mr. O'HARA. I will yield to the gentleman.

Mr. BENNETT. Mr. Bakke, if the DC–7 had known that these other two planes were maneuvering in the air, or at least if the pilot had known that one of the planes was maneuvering at the same altitude, it would be quite obvious that the DC–7 would have gone to a lower level. Is that not true? The DC–7 would not have maintained that flight level in the same immediate area if it were known that jets were flying in the same vicinity and at the same altitude, would it?

Mr. BAKKE. I am not certain that that is true at all, sir. As a matter of fact, it would be my view that if these pilots during this flight were asked whether they could reasonably expect other aircraft to be maneuvering within substantially the same test area at 25,000 feet, it is my view that their reply would be, "There isn't a day that goes by but what there aren't dozens of aircraft at 25,000 feet. And if we are going to get our job done at all we have to fly and we have to share this airspace with these aircraft and rely on our ability to see and avoid other aircraft to insure against collision."

This is my own judgment, however, in the matter.

Mr. BENNETT. If you were the pilot of the DC–7 and you knew that jets were maneuvering around at the same level, would you not have gone to 20,000 feet or some lower level? Would that not have been a safer thing to do?

Mr. BAKKE. Well, sir, the supposition that I made in my reply to you earlier was that I would have no more reason to believe that there weren't just as many or more aircraft at 20,000 or at any other altitude that I might have selected. If I could know of all aircraft, if I knew an altitude in the vicinity of 25,000 feet, something close by, at which there was the least number of aircraft, yes, I would clearly go to that altitude.

Mr. BENNETT. Just to sum up, if the DC–7 had been at some different altitude, particularly a lower altitude, the accident would not have happened, would it?

Mr. BAKKE. This accident would not have happened; yes, sir.

Mr. O'HARA. Were the atmospheric conditions such that these planes were leaving vapor trails? Do you know? At least the jets might have been leaving vapor trails. Isn't that possible?

Mr. BAKKE. Contrails were observed during the day, sir. I do not recall whether these aircraft were leaving contrails at 25,000 feet.

Mr. O'HARA. Well, of course, we do recognize the practical thing in this situation, Mr. Bakke; that it is highly important that the manufacturer give a thorough testing to these planes, both the fighter planes, the jet planes, and the very expensive DC–7. But would it not also be true that under these testing procedures the pilots and their crew members are far more preoccupied with the testing maneuvers, with the various instruments, with the record of the response of the plane, and they are not, probably, paying nearly as much attention to the forward progress of the plane as they ordinarily would be paying? Is that not true?

Mr. BAKKE. This is a very distinct possibility. And in many instances it is a clear probability. It is for that reason that the Board decided that, in amending part 60 yesterday, particularly with respect to the note which I read to the committee, it wished to put the industry on notice that all such test procedures should be evaluated thoroughly to determine whether the order of preoccupation is such that an observer pilot is required. We believe that this is a duty upon anyone who conducts flight testing of this sort. I would agree wholeheartedly.

Mr. O'HARA. Mr. Bakke, I am perfectly amazed that there isn't more coordination between these people, and I think it is necessary that there be some regulations imposed which are very strict regarding these matters, because I think it is not only the tragedy of these poor fellows in the planes that is involved, but the innocent victims on the ground that are certainly not to be blamed in any way. I think it is a tragic picture that we have had here this morning, of what has obviously happened. Thank you.

Mr. WILLIAMS (presiding). Mr. Roberts?

Mr. ROBERTS. Mr. Bakke, when you were describing the operation of the radar in the two F–89's I understood you to say that once the radar in the tracking plane locked on the target that all other pips would be disregarded. Does that explain in part why the DC–7 did not show or would not have shown on the radar of the tracking plane?

Mr. BAKKE. It does to me, sir. Unfortunately, I do not consider myself a specialist in this particular equipment. It is a highly classified equipment, and I am not intimately familiar with it. But my understanding is, as I described before, that, once the tracking aircraft locks onto the target aircraft, the radar then no longer sweeps the entire area and does not then identify any other targets in the area. This is my understanding, sir. This would, or at least it does to me, explain that it probably was not possible for the F–89 to identify the DC–7 as another target.

Mr. ROBERTS. I believe you stated, too, that visibility was good for about 50 miles in that particular area at that particular time.

Mr. BAKKE. In flight, probably considerably in excess of 50 miles.

Mr. ROBERTS. Is there any thing about the construction of cockpits on the two planes involved in the collision that might be changed that would lend itself to better visibility on the part of the pilots?

Mr. BAKKE. I dare say there are, sir. There isn't a cockpit, to my knowledge, which could not be improved in that respect. I think, directly, the answer is "Yes; there are."

Though I must qualify that by saying that I am not at all familiar with the cockpit of the F–89 myself.

I say that because the question of cockpit vision is a problem which has plagued aircraft designers and Government agencies alike for many years. There has been a great deal of activity which has been devoted to an improvement of cockpit design so as to increase the ability of the pilot to see and avoid other aircraft.

As a matter of fact, the SAE—the Society of Automotive Engineers—has a standing group which has devised certain principles of cockpit design to that end.

We have amended our Civil Air Regulations last fall, as a matter of fact, to make more stringent the requirements for cockpit vision.

The DC–7 is, of course, designed to the very latest requirements, or, at least, has incorporated in its cockpit design the latest knowledge with respect to cockpit vision. This is a continuing thing. And I think that I can honestly say that the Government agencies are continually dissatisfied in this respect, and that the day we presume either of these cockpits to be completely adequate in that respect progress has stopped. And we do not intend that that shall occur.

Mr. ROBERTS. I note in paragraph 2 of the Civil Air Regulations, amendment 60–1, which recently has been promulgated, it provides that these tests will be conducted over open water or sparsely populated areas having light air traffic. And in the second paragraph the statement is made:

**In 1947 an extensive study was undertaken by the civil and military agencies concerned, with a view toward determining the safeguards which should be applied to prevent the creating of a public hazard.**

In other words, this problem has been before the civil and military authorities and before the CAB now for almost 10 years.

Mr. BAKKE. Yes, sir.

Mr. ROBERTS. Why is it that it has taken that long to recognize that some regulations such as have been promulgated are necessary?

Mr. BAKKE. Sir, the question is, I believe, a question of the device which is to be used to achieve a desired result.

At the time this agreement or this study was undertaken in 1947 it was decided that it would be most useful to seek to achieve this objective, eliminating the hazard that is involved in especially experimental flight testing through some coordinating body. In this case the ACC Airspace Subcommittee was selected. There all of the Government agencies are represented. The problem was explored at length, and it was agreed that the agencies concerned, the military so far as their aircraft were concerned and the civil so far as its aircraft were concerned, would each seek those devices that are most effectively used by these agencies to avoid this kind of hazard.

Now I explained that on the civil side this was done with just as much regulatory effect as is had through the amendment that we described earlier; that is the one adopted yesterday.

We armed the Administrator, in part 1 of the Civil Air Regulations, with the authority to prescribe precisely such limitations in the terms of the special flight certificate issued to aircraft operators. This was done in this case. The DC–7 which was involved in this accident had issued to it a special flight authorization containing an operating limitation prohibiting the flight of that aircraft over large assemblies of persons or congested areas. That operating limitation had all the force and effect of a regulation.

Now the Board chose to amend part 60 in toto in order to accomplish two things: first of all, to give explicit coverage for flight test operations in the air traffic rules. They have far broader distribution and more people would come to know about this restriction if it were in part 60. Part 60 is probably the best known of all the Civil Air Regulations.

And, secondly, because the air traffic rules are applicable to all operations. They are applicable to public aircraft or military aircraft as well as civil aircraft. This rule now appearing in part 60 represents the exercise by the civil regulatory agency of direct control

in the air traffic rules of the flight testing of military aircraft as well. Up until now it had been presumed, through the machinery of ACC, that the military could accomplsh the same result independently.

Mr. ROBERTS. I gather that you are saying that there is a reluctance on the part of the military to cooperate in this problem of flight testing?

Mr. BAKKE. No, sir, I have not said that at all because, as a matter of fact, our investigation with respect to this accident has not proceeded sufficiently far along for us to know even what the policies of the military are with respect to this kind of operation. We shall know in due course.

But the Board acted even without knowing precisely what safeguards the military had applied in these operations. The Board nevertheless acted in part 60 in order to be certain.

There is no doubt now, no ambiguity, of any sort existing now. Part 60, as do air traffic rules, covers the operation of all aircraft without exception. That is in the United States, of course.

Mr. ROBERTS. That is all I have.

The CHAIRMAN. Mr. Hale?

Mr. HALE. Which of the planes that collided was first in the air? Do you know?

Mr. BAKKE. I am sorry, sir. I do not have that information.

Mr. HALE. The two military planes took off from the same military airbase, I presume, in the vicinity?

Mr. BAKKE. Yes.

Mr. HALE. Did the Douglas take off from a public airport or from some private field or company field?

Mr. BAKKE. I am not able to classify the field as a public or private field, but it is my understanding that it took off at the airport at which the Douglas plant is located.

Mr. HALE. Is that a commercial airport or is that an airport of the company?

Mr. BAKKE. I say I am not able to classify the airport. I myself have landed at the airport. I am not able to classify it for you, sir, as to whether I would call it a public or private airport.

Mr. HALE. Is it used exclusively by the Douglas company?

Mr. BAKKE. I don't believe so, sir.

Mr. HALE. The two military planes were performing a military maneuver. They were not testing; they were, in effect, playing tag?

Mr. BAKKE. No, sir.

The information that we have from the manufacturer is that they were testing equipment, that these maneuvers were prescribed by the manufacturer as a means of determining that the equipment was operating within approved tolerances.

Mr. HALE. You talk about a target plane and a tracking plane. I got the impression that it was a simulated military maneuver and that one plane was trying to track and destroy another one.

Mr. BAKKE. No, sir.

It is a simulated military maneuver in the sense that it involves a test procedure which closely approximates the kind of maneuver for which the equipment is designed. And this maneuver, this series of tests is intended to insure that the equipment is capable of performing that kind of a function within approved tolerances.

Mr. HALE. How far apart were these two airbases?

Mr. BAKKE. I do not have that information, sir.

Mr. HALE. What I am coming to is this: certainly as far as the military planes performing test flights is concerned, why shouldn't they be required to perform those test flights in airspace reserved for the purpose? Is that impractical?

Mr. BAKKE. I don't know that I can answer that question as to whether it is impractical.

The policy to date has been to operate in the reverse order, namely, not to reserve airspace for this kind of use, but, rather, to prohibit such operations in airspace in which a hazard is known to exist.

I presume the assumption is made that this would be the simpler process.

I should, however, like to qualify that in one respect. There are airspaces—and, by the way, according to some views, altogether too much airspace—which are split up or reserved for special operations involving peculiar hazards, air-to-air gunnery, for instance, or, in some cases, experimental maneuvers or testing of experimental aircraft. There are, you might say, pieces of airspace reserved for such purposes.

But the production flight testing which was involved here does not typically have airspace reserved for this kind of operation.

Mr. HALE. I have been, and several members of this committee have been to the airbase at Muroc, which is in the middle of a desert. That would seem to be an ideal place to perform the kind of maneuver that these planes were engaged in. The airspace over a great city would seem to be peculiarly inappropriate space for experiments or maneuvers of this kind. Would that not be true?

Mr. BAKKE. Yes, sir. And the Board has said so by regulation, sir.

May I qualify that, sir, in this respect:

When you say maneuvers of this kind I presume you are talking about hazardous testing maneuvers. I would hope that——

Mr. HALE. Not necessarily hazardous, but any kind of experimental maneuver where the planes are just circling about. It is not like a plane which is going from here to there on a given course.

Here are these planes just going around and around in the air.

Mr. BAKKE. Well, sir, unfortunately, airplanes which maneuver frequently in the vicinity of—perhaps not over but at least in the vicinity of—populated areas probably exceed by a considerable number the margin of aircraft that are just flying straight and level in those areas.

The physical maneuvering of the aircraft in this vicinity at the time of the accident was not much different from the kind of maneuvers that you might expect in training exercises, in private flying, for instance, or in sightseeing by private people.

There is a tremendous amount of training activity going on in the United States today. The maneuvers of those aircraft involved in those training activities can hardly be distinguished from the maneuvers that were involved in these two aircraft.

This tremendous amount of flight activity occupies a tremendous amount of airspace. And the exclusion of this traffic from large areas would be a move which the Government would only wish to take, I am sure, after the most thorough review not only of how much hazard is

avoided by such restriction but what the total impact is and whether the public itnerest would truly be served by such a move.

Mr. HALE. Were commercial aircraft going through this airspace at the same time? Is this on a lane of regular air travel?

Mr. BAKKE. Yes, sir; it is in very close proximity to, you might say, a route which is used rather heavily. I believe it is on the airways.

In answering the question directly, sir, there may be some doubt as to whether the collision occurred within the airway; that is Amber Airway 1. But it was very close to the northwest edge of this airway.

One of the aircraft clearly struck the ground, that is the point of impact with the ground, with the DC–7, was clearly in the airway. That is, it was within the geographic limits of the airway.

The other aircraft was probably slightly outside the airway.

Mr. HALE. That would seem to me to make it worse because maneuvers of that kind certainly should not be carried on in a regular airway.

Mr. BAKKE. Sir, may I say that anything which can be classified as an unusual maneuver is already prohibited by regulation, and has been for many years, from being conducted on an airway.

Mr. HALE. Then the DC–7 plane was violating the air rules in being where it was. Is that correct?

Mr. BAKKE. I don't know that that is correct, sir. I don't know that the maneuvers of the aircraft could be characterized as unusual.

Mr. HALE. I don't want to take too much time, but you say that the DC–7 was in an airway, and then you say that they are not supposed to do maneuvers in commercial airways. Am I right?

Mr. BAKKE. No aircraft is permitted by regulation to perform unusual maneuvers at any time within the limits of an airway. I do not know whether either of these aircraft were performing what could reasonably be termed as unusual maneuvers. I have no knowledge of that.

I gave you what was my own personal judgment, that the maneuvers of both these aircraft are maneuvers which could be regarded as normal and maneuvers which could not be distinguished from the maneuvers of the majority of aircraft operation going on this minute throughout the United States.

Mr. HALE. I do not want to quarrel over what is an unusual maneuver, and what is a usual maneuver, but certainly any kind of operation in which planes are just circling in the air is a different kind of operation from an operation in which planes are flying on a defined course from one terminus to another.

Mr. BAKKE. We believe, sir, that there is a greater likelihood that that condition which characterizes operations such as this—whether it does these two flights or not I am not prepared to say at this time—but that the condition which characterizes operations such as this most nearly is the word "preoccupation" rather than the unusual nature of the maneuver.

The aircraft themselves are not being maneuvered through unusual attitudes. It may be fairly said of many such operations that the preoccupation of the crew is unusual. And it is this type of thing which, at least in my judgment, is the condition which the Board met head-on in the amendment of section 60.12 of part 60.

But I do not think that the maneuvers of either of these aircraft could fairly be considered acrobatic in nature or unusual in that respect.

Mr. HALE. But certainly each pilot might well have known that other planes were in the vicinity and certainly did know that other planes could be in the vicinity.

Mr. BAKKE. They had every reason to believe that, sir.

Mr. HALE. That is all.

The CHAIRMAN. Would my colleagues bear with me, to ask a question that I think ought to be on the record. I was hoping that somebody would do it before this.

Mr. Hale referred to the possible violation of the rules regarding the unusual maneuvering.

Well, if the type of maneuvering of those two jets is not unusual I do not know what you would call unusual when it comes to flying. But, in addition to that, wasn't this a highly congested area?

Mr. BAKKE. This, as has been, I am sure, apparent to the committee, is a matter which is disputed by the parties of interest.

Clearly, the DC–7 struck the ground in what could be termed a congested area. I think that is very clear.

The CHAIRMAN. That whole area in there—Pacoima, Ontario, and Santa Monica—would you not say that is a highly congested area?

The crash happened over Pacoima. Is that not a highly congested area? I mean with a lot of residences, a dense population.

Mr. BAKKE. Sir, the area which lies within the triangle of those three points—Pacoima or San Fernando, Santa Monica, and Ontario—that triangle I would say is a congested area.

The CHAIRMAN. And they were having these test flights and maneuvers at that time over that area?

Mr. BAKKE. Well, sir, as I explained, the two Northrop aircraft had drifted or maneuvered from the northeast—that is from the Palmdale area.

The CHAIRMAN. I know. You explained all that.

Mr. BAKKE. Now this line which one might draw between San Fernando or Pacoima and Ontario is the borderline. Immediately northwest of that there are mountainous and, further north, desert areas.

The CHAIRMAN. I understand that. I do not think we need to split hairs on the question.

There were a lot of people in that area.

Mr. BAKKE. Where the airplanes fell there is no question.

The CHAIRMAN. Of course, they had to be there or they would not have fallen there.

Mr. BAKKE. There is no question.

The CHAIRMAN. That being true, the rules were being violated by both operations; were they not?

Mr. BAKKE. This I do not know.

The CHAIRMAN. If what I said is true, if they were maneuvering over a highly populated area, that was in violation of the rules; was it not?

Mr. BAKKE. I believe one could fairly say that if that were the case so far as the DC–7 was concerned, it was in violation of the terms of the operating limitation, the specific terms of the special flight authorization.

The CHAIRMAN. The military comes under part 60 of the Civil Air Regulations; do they not?

Mr. BAKKE. Yes, sir.

The CHAIRMAN. Would not the military then be equally at fault?

Mr. BAKKE. The military aircraft, to my knowledge, were not subject to the same operating limitations as the DC–7.

In the case of the military aircraft it was prohibited from performing only what could be classified as unusual maneuvers or acrobatic maneuvers.

If the assumption is made that these maneuvers were unusual maneuvers, then I would say the Northrop aircraft was also in violation.

I would think, though—and this is the point I made earlier—that the question of whether they are, in fact, unusual maneuvers would be the subject of considerable dispute.

The CHAIRMAN. I think, in the first place, we ought to have an understanding that part 60 establishes certain regulations.

Mr. BAKKE. Correct.

The CHAIRMAN. We ought to understand to whom part 60 is applicable. And we should not hesitate to call a spade a spade. If somebody executed unusual maneuvers in an area where such maneuvers are prohibited, endangering the lives of a lot of people, then it ought to be made clear.

That is what I wanted to get in the record for the consideration of anybody who has an interest in it.

Mr. HALE. Mr. Chairman, what I would like to make clear is that I cannot understand the basis of this distinction between usual and unusual maneuvers. If they are engaged in any kind of maneuvers they are a hazard to other planes.

The CHAIRMAN. That is precisely what I have in mind. And I say to my colleague that we ought to understand first the extent of the act and who is to comply, and we should recognize the realities of the situation. And if somebody is wrong we should admit it. If there is dereliction it should be understood.

The CHAIRMAN. I am presuming on the time of my colleague here to get this in the record.

Mr. Staggers?

Mr. STAGGERS. Mr. Bakke, I have just 1 or 2 little things to clear up.

The DC–7 was in a dive when it came down into the congested area?

Mr. BAKKE. Yes, sir.

Mr. STAGGERS. Was it established in any way that it went into a dive immediately? Or did it go for some distance from the collision before it went into the dive?

Mr. BAKKE. There was a process of, one might say, rounding out of the flight path. But as quickly as the inertia of its forward motion would permit, it went into a straight dive, yes, sir.

Mr. STAGGERS. I understood you to say that the DC–7 was proceeding at 135° and then made a 90° into 45°.

Mr. BAKKE. No. This was the Northrop aircraft.

Mr. STAGGERS. It went into a 45°?

Mr. BAKKE. This was the Northrop aircraft, the F–89. It was proceeding, immediately prior to the accident, on a heading of 135° and had turned or was in a turn toward a heading of 45° at the time of the collision.

Mr. STAGGERS. Yes, sir. Now your job, as I understood, is that you are Director of the Bureau of Safety for the Civil Aeronautics Board?

Mr. BAKKE. Well, sir, as of today I am Director of the Bureau of Safety Regulation.

Mr. STAGGERS. It is your responsibility, or you are entrusted with the responsibility of air safety then in the air?

Mr. BAKKE. Yes, sir; in very large part.

Mr. STAGGERS. I presume that sooner or later you will come back to the Congress and establish the responsibility of this air crash and tell us definitely what was wrong and what should be done to correct it in the future?

Mr. BAKKE. Very, very clearly, sir.

Mr. STAGGERS. I think that should be done because of the point that Mr. Hale made and the chairman about this little fine distinction of this being a sort of normal testing in the airways and close to congested areas and so forth. You are entrusted with the responsibility of seeing that certain regulations are made clear to the military and to these companies as to where they test and where they should not test. And when you said you did not know exactly what the military procedures are on this safety regulation it amazed me.

Mr. BAKKE. My observation was, sir, that I did not know precisely what the military procedures are with respect to the control of the flight testing of production aircraft or aircraft which had been subjected to modification. That I do not know.

Mr. STAGGERS. Then I misunderstood you.

You do know, then, what they should do in relation to airways and congested areas and so forth?

Mr. BAKKE. I am very familiar, sir, with military regulations, that is, flight regulations, generally in the general disposition or operation of military aircraft. I am not familiar with any rules that are applicable to flight testing of military aircraft.

Mr. STAGGERS. What I am trying to get at is, the responsibility lies directly with you and with your agency to report to this Congress and to carry out the regulations and see that safety is enforced, and you tell us what is going to be done and what the fault was and what should be corrected. Somebody was at fault. Either it had not been set out directly to these companies and to the military as to what they should do, or else they are named as responsible. And that responsibility lies on your shoulders and your group, I believe.

Mr. BAKKE. Yes, sir.

Mr. STAGGERS. I will skip any further questions until next time. Thank you very much.

The CHAIRMAN. Mr. Beamer.

Mr. BEAMER. Mr. Chairman, I do want to pursue the thought that you yourself had presented.

I think that Mr. Bakke has done an excellent job in presenting this to us so that we could readily understand it.

I want to ask this:

The pilots, radio operators, and crew of the Douglas, were they employees of the Douglas Aircraft Corp.?

Mr. BAKKE. Yes, sir; they were.

Mr. BEAMER. They were not enlisted men or were not members of the Air Force?

Mr. BAKKE. No, sir; they were not.

Mr. BEAMER. The crew members and pilots and operators on the Northrops, were those Air Force people?

Mr. BAKKE. No, sir. They were civilian employees of Northrop.

Mr. BEAMER. Again civilian employees?

Mr. BAKKE. Yes, sir.

Mr. BEAMER. Were those Northrops trainers or fighters?

Mr. BAKKE. They were fighters, sir. The F–89 is a fighter aircraft.

Mr. BEAMER. A two-seater?

Mr. BAKKE. Yes, sir.

Mr. BEAMER. There were two people in them?

Mr. BAKKE. Yes, sir; a radar operator and a pilot.

Mr. BEAMER. In other words, these men were probably under instructions from their respective corporations, and carrying out certain instructions or orders. And is it apparent that they were doing it without any negligence on their part or just performing their regular duties?

Mr. BAKKE. As best we can determine, sir, on the basis of a preliminary investigation; we have not been able to identify anything that we could call negligence.

This, however, is always one of the principal objectives of our investigations—to determine whether, in fact, there was.

We are continuing to search for any signs of negligence or deficiencies in procedures or instructions, or whatever might be the case—deficiencies in regulations, if this is appropriate.

Mr. BEAMER. Do you happen to know whether or not the two corporations, Douglas and Northrop, had issued certain instructions for those particular flights, or were they just on regular flights in accordance with the previous flight instructions?

Mr. BAKKE. Sir, we were notified by telephone last night by our Santa Monica office that all pertinent instructions and policies of the two manufacturers had been obtained late yesterday afternoon. These have not been forwarded to me as yet.

While I was in Los Angeles, we had some difficulty in obtaining this material. It has since been obtained, but it has not been analyzed by anyone in our office. I myself have not seen it.

Mr. BEAMER. The reason I am asking you the question is, I presume your group will want to determine whether there is any responsibility on the part of the manufacturers, who are rightfully testing their equipment before it is given to the Air Force, but whether there is any responsibility on their part in the lack of issuance or improper issuance of orders, or whether there is any neglect on the part of the pilots in their employ.

Mr. BAKKE. We are very much concerned about that question.

Mr. BEAMER. There is no answer to that, and you hope to determine that?

Mr. BAKKE. Yes, sir.

Mr. BEAMER. That is all.

Mr. MACDONALD. I have just one question.

You are the director of safety regulation.

I was wondering what power, if any, you have to enforce these regulations. And do you think that you have enough power of enforcement in your Bureau?

Mr. BAKKE. Well, sir, as an agency responsible for the promulgation of the civil air regulations, the Board operates in a quasi-legislative sense as an arm of the Congress in writing law in a technical area.

The Civil Aeronautics Act and the reorganization plans, especially

3 and 4, quite clearly indicate that the Congress contemplated that the Administrator of Civil Aeronautics would administer and enforce the civil air regulations. We then look to the Administrator of Civil Aeronautics to carry out that function.

We prepare, you might say, the policy, the standards, the rules, and the Administrator administers and enforces those rules.

Mr. MACDONALD. In other words, you don't have anything to do with enforcement?

Mr. BAKKE. No, sir.

Mr. MACDONALD. That is all.

The CHAIRMAN. Would the gentleman yield?

Mr. MACDONALD. Yes.

The CHAIRMAN. You do have the responsibility, though, of investigating an accident after it has occurred?

Mr. BAKKE. Clearly, sir.

The CHAIRMAN. Mr. Bush?

Mr. BUSH. Mr. Chairman, I want to commend Mr. Bakke for the information he has given us on his preliminary findings in this accident.

With your permission, Mr. Chairman, I would like to yield to Mr. Holt, our good friend from California, who would like to ask some questions.

Mr. HOLT. Mr. Chairman, I think I should not take the time.

The CHAIRMAN. We would be glad to take the questions from our distinguished colleague, but we have had a policy in this committee for the 16 years I have been on it, and I hope our colleague understands.

Mr. HOLT. I surely do. We have the same procedure on Education and Labor.

The CHAIRMAN. If he has any questions, if they are submitted to any one of us, we will see that they are asked.

Mr. HOLT. I would like to thank my colleague.

Mr. BUSH. I have no questions.

The CHAIRMAN. Mr. O'Brien?

Mr. O'BRIEN. It seems to me that the nub of the matter here is the definition of the phrase "unusual operation."

If in your mind this was an unusual operation, that is, the operation in which the F–89's were engaged, they would have been required to operate over a remote area or over water. Is that correct?

Mr. BAKKE. Yes, sir.

Mr. O'BRIEN. Don't you think that it is an unusual operation for two planes to screen out, in effect, or semiblind themselves by locking their radar on a single target?

Mr. BAKKE. Sir, I think I can answer that question just by calling to your attention the fact that you used the words "unusual operation."

The regulation which now prohibits certain operations over congested areas or in controlled airspace prohibits operations only when the maneuvers of the aircraft are unusual.

Now by "maneuver" the regulation is speaking of the attitude of the aircraft. That is, when the attitude of the aircraft is an attitude which is not necessary for the normal movement of aircraft through flight. The execution of a turn is not considered and is not by definition an unusual maneuver.

It was for this reason that I pointed out, in answer to a previous question, that what could very well be considered unusual in operations such as these—whether they were or were not in this particular case we leave open—but what could reasonably be considered unusual in many operations like these is the unusual preoccupation of the crew. And I think this is the sense of your question.

With this we agree. And it is for this reason, because the regulation did not concentrate on this aspect of flight testing, that the Board decided to include in part 60 an additional emphasis, and additional bit of language which would produce this emphasis on preoccupation.

Mr. O'BRIEN. I have one more question. Could not this operation being performed by the F–89's have been done just as efficiently and as effectively over water or over a more remote area?

Mr. BAKKE. Yes, sir; it could.

Mr. O'BRIEN. Then there might be involved here a matter of bad judgment, if not a violation of regulations?

Mr. BAKKE. This could very well be.

Our preliminary information indicates that it was the intention of these two pilots to conduct their flight, their maneuvers, their operations over the uncongested area northeast of Los Angeles.

There is a suggestion—and this we are attempting to identify more completely—that the drifting over the city of Los Angeles was inadvertent. This, however, we are exploring further.

Mr. O'BRIEN. Thank you.

The CHAIRMAN. Mr. Carrigg?

Mr. CARRIGG. Would it be possible for a company testing two-seated fighter planes to have an observer in a plane of that type? Could the radar operator act as an observer?

Mr. BAKKE. Sir, it is suggested to us, on the basis of the information that we now have, that the kind of operation involved here could conceivably require an intense preoccupation on the part of both crew members. If this is the case, then I would submit that the other alternative, in the language which was added to part 60, would come into play. What is known as a chase airplane—that is, a second airplane flying in loose formation with another aircraft, in direct communication with that aircraft, who would be an observer and who would alert the other aircraft as to possible collision hazards—could be used. This is done, as a matter of fact, in single-seated airplanes today.

The military has need, for instance, for instrument-flight instruction and instrument-flight training in single-seater fighter planes. This is the only way it can be had, by the use of a chase airplane serving as an observer.

Mr. CARRIGG. Thank you.

The CHAIRMAN. Mr. Moss?

Mr. Moss. Mr. Bakke, you stated that one of the planes crashed within the geographic limits of an airway. There is heavy commercial traffic in that area, is there not?

Mr. BAKKE. Yes, sir; I would say so.

Mr. Moss. Were the commercial planes alerted to the fact that the DC–7 was operating in that airlane and the altitude of operation?

Mr. BAKKE. No, sir. To my knowledge, there was no such notice.

Mr. Moss. Is that not a dangerous procedure, not to require some alerting of commercial planes as to the operation and test of any type of aircraft?

Mr. Bakke. Well, sir, the view which the Board has had to date is that, if there is any hazard at all or any peculiar hazard associated with the operation of an aircraft within an airway, by regulation, that operation should not be permitted.

The regulation has not conceded that there should be permitted certain operations which are known to be hazards and then merely require notification of those operations.

Mr. Moss. Is not the presence of the plane itself a hazard?

Mr. Bakke. This, sir, under the concept which the Board operates in part 60, namely, that of see and be seen, is not acknowledged as a hazard provided that the pilot accepts what in part 60 is clearly his responsibility, to be continually vigilant for other traffic. The rule puts that condition on the pilot, and says that under those circumstances the presence of another aircraft is not regarded as hazardous.

Mr. Moss. Would the pilot of a commercial aircraft be aware of the presence of other commercial aircraft at his level of flight?

Mr. Bakke. He might. But the number of other commercial aircraft of which he would have knowledge would be very, very small. The percentage would be ridiculously small. He typically does not.

Mr. Moss. Would he know that commercial aircraft would be flying at a certain level in this area?

Mr. Bakke. He would have a general knowledge of the altitudes which are most frequently used by commercial traffic. However, all altitudes are available to commercial traffic, and he would have no continued knowledge concerning the traffic at any given time at any given altitude.

Mr. Moss. Do you issue the certificates for test flying of military aircraft?

Mr. Bakke. No, sir. This is regarded as an administrative function, and is performed by the Administrator pursuant to the standards or regulations laid down in the Civil Aeronautics Act.

Mr. Moss. Then there were 2 different standards imposed upon the 3 aircraft in the area in test. The DC–7 was prohibited by its certificate, or by the conditions of it, from flying over a congested area.

Mr. Bakke. Correct.

Mr. Moss. The Northrop planes were only limited as to the unusualness of their maneuvers?

Mr. Bakke. Correct.

Mr. Moss. Should there not be better coordination? Should not the same rules be imposed upon both aircraft?

Mr. Bakke. Sir, I wonder if I could explain that situation this way. Under the act the air-traffic rules which are promulgated by the Board are applicable to all users of airspace without exception. Part 60, therefore, is applicable to all—to military aircraft and to civil aircraft. The Board is authorized to establish operating limitations only upon civil aircraft.

The Board does not regulate the competence of military pilots or their hours of duty or how they are to fly airplanes and so on except

when it relates to the air-traffic rules. This the military is required to provide separately.

Now, under the agreements which I spoke of earlier, which were reached in the Airspace Subcommittee of the ACC, there was an understanding that, although the Board would continue to regulate with respect to air-traffic rules, the military would apply its own operating limitations upon the operators of military aircraft, and the civil agencies would apply the operating limitations applicable to civil aircraft.

So far as the performance of this function by the civil agencies are concerned, I am clear. I know the manner in which this responsibility has been discharged.

We are not sufficiently clear at this moment to know the action that has been taken with respect to the operation of the military aircraft.

This situation existed under agreement between the agencies concerned until part 60 was amended. As of that time the Board decided that it had better regard the flight testing of aircraft, regardless of whose aircraft they were, in the light of its responsibilities within the air-traffic rules as contemplated by the act, and it therefore decided that it would write explicit provisions covering the flight testing of aircraft notwithstanding any operating limitations which the military might apply independently.

Mr. Moss. The military will be bound by the amended regulation?

Mr. BAKKE. Yes, sir.

Mr. Moss. That is all.

The CHAIRMAN. Mr. Derounian?

Mr. DEROUNIAN. Mr. Bakke, did you ascertain whether or not any of the pilots of these respective planes that collided knew that the other was in the air?

Mr. BAKKE. No, sir. We had no way of ascertaining that at all. Let me put it this way: we have no information available to us that they had knowledge.

Mr. DEROUNIAN. Did you ask the Northrop people or the Douglas people whether each had notified the other company that he had planes in the air at the time?

Mr. BAKKE. This is a very essential part of the investigation of our operations committee.

During the weekend that I was myself participating in the investigation the folks who would have that information were not available to us, and I myself could not get it.

Mr. DEROUNIAN. Mr. Bakke, don't you think it would be commonsense, from a management point of view, let alone the many regulations, for a company to call up the other and say, "Look. We've got a couple of airplanes out. Just be a bit alert." That should not take too much time, and it would save lives. That is one thing that we at least ought to insist upon.

Failure to notify another company of planes in the air ought to be some evidence of some kind of negligence.

Another question: Did not the collision take place near two airports? I am talking about the Lockheed airport where DC–7's take off, and the San Fernando airport where they have jet trainers.

Mr. BAKKE. Yes, sir. There is a large concentration of airports throughout this entire area. As a matter of fact, the DC–7 landed

on the ground just 3 blocks away from the Whitman Airpark, which is a smaller airport.

Mr. DEROUNIAN. From my understanding, the Lockheed and San Fernando Air Base are there, and neither airport has communication with the other, and no one in the air has communication with anyone else in the air or with the two other airports.

So in this instance you have a three-way confusion. And I am just astounded that more planes have not collided.

Now what does your agency propose to do so that there can be some communication between these airports and planes overhead?

Mr. BAKKE. I think I can answer that question fully only to say that at the moment we plan to investigate that situation as thoroughly as possible. We simply do not know whether this kind of coordination is possible and whether the kind of control of which you speak is prohibited by reason of the fact that there would have to be such a large curtailment of operations.

I do not know what elements should be considered. But we do intend to consider all these as they reveal themselves in the course of the investigation. That is about the best I can say for now, sir.

Mr. DEROUNIAN. On page 1 in your new amendment, in the last sentence of the first paragraph, you state that:

> Military aircraft, however, are not subject to these specific limitations.

Is that because they are under a division of authority so far as civilian and military go?

Mr. BAKKE. Very clearly, sir.

Mr. DEROUNIAN. Would you propose to coordinate with the military so that, on their own volition, they can take the necessary steps?

Mr. BAKKE. We already did, sir. I visited certain offices of the Norton Air Force Base on Sunday evening and had a very extensive conversation with them, and they have agreed to furnish some representatives in the investigation who would work directly with us in order to clarify any questions concerning their procedures for the flight testing of aircraft.

Immediately following that we intend to coordinate further any revisions, any amendments to those procedures to identify more fully just what the Board should do in this regard.

Mr. DEROUNIAN. Thank you

The CHAIRMAN. Mr. Dingell.

Mr. DINGELL. Thank you very much, Mr. Chairman.

Mr. Bakke, I want to compliment you on a very fine job this morning. You are dong very well on a difficult subject.

There are several things that occur to me in regard to what we have been going over, one of which is the point that Mr. Derounian and you have been talking about, and that is specifically this.

It appears that the Board has the power to regulate civil aircraft over congested areas on the ground. That is a fact.

It would appear that there is no such authority to regulate civil aircraft and testing of civil aircraft over congested areas or, rather, in congested airspace, space congested with aircraft.

Would you care to comment on that?

Mr. BAKKE. I am not sure I understood your question fully. But may I say that under the Civil Aeronautics Act, under title VI of the Civil Aeronautics Act, which contains the authority for the regulation

of aviation, the Board has full authority to regulate, to promulgate air traffic regulations which will be applicable to all users of the airspace, whether civil or military.

Mr. DINGELL. Pardon me. Perhaps I misstated my question.

Maybe it would be better to say that while the Board has, and the Administration has, effected regulation of aircraft in cases where aircraft were flying over congested areas on the ground, they have not yet fully chosen to exploit their power to regulate aircraft flying in what would be congested areas within the air.

In other words, areas in the air where there are an excessive number of aircraft for safe operation.

Mr. BAKKE. We have, 2 years ago, as a result of many proposals for the addition of regulations to part 60 to control high-density air traffic, promulgated special regulation SR–408. This regulation established in the Washington area a zone known as the Washington High-Density Air Traffic Zone. Within that zone special restrictions were to apply. This was an experimental operation which lasted for a little over a year and a half.

As a result of our experience during this operation we promulgated certain amendments to part 60 authorizing the Administrator to establish such high-density air traffic zones anywhere in the country where he finds the congestion in the airspace to be such as to require the imposition of additional limitations.

That regulation was adopted this morning.

I might just give an illustration of the type of thing that is involved.

When the Administrator designates an area as a high-density air traffic zone, aircraft may not fly through that zone at speeds in excess of 180 miles per hour or 160 knots.

There are such additional restrictions applied within high-density air traffic zones. And this process is, you might say, beginning now. We have conferred this authority on the Administrator. He will designate these zones. And we have established the additional restrictions which shall apply.

Mr. DINGELL. Have you taken any steps toward applying such restrictions in the area of California where this accident occurred?

Mr. BAKKE. Sir, we have merely given the Administrator discretion to examine the amount of traffic density in each locality and then determine whether the density in that locality warrants the designation of a high-density traffic zone.

Mr. DINGELL. Is not this area in California an area where there are a lot of aircraft plants located?

Mr. BAKKE. Yes, sir.

Mr. DINGELL. There also is a substantial number of airfields?

Mr. BAKKE. Yes, sir.

Mr. DINGELL. And apparently substantial air usage by commercial airliners and by testing aircraft and by private aircraft and military aircraft. Is that not a fact?

Mr. BAKKE. Yes.

Mr. DINGELL. It would appear to be a good idea to look at this particular area then for the establishment of such a high-density area and to apply such special regulations.

Let me ask you this: Under the set of regulations which the Administrator is empowered to establish for these areas, will he be permitted to—let us say—limit the testing of aircraft in these high-density areas?

Mr. BAKKE. Not as a consequence of the high-density rules. But he will, as one who is charged with enforcement of the civil air regulations, be armed with sufficient authority to stop any testing of aircraft which is done contrary to the regulation which we adopted yesterday. That regulation prevents the testing of aircraft in high-density areas, over congested areas or a large assembly of persons.

Mr. DINGELL. Let me ask you one more thing.

Apparently there is a substantial possibility that this collision took place within a regeularly designated route. Is that not a fact?

Mr. BAKKE. An airway; yes, sir.

Mr. DINGELL. An airway.

And, that being so, the presence, of course, of this F–89 military aircraft in that area, according to the colloquy between yourself and Mr. Moss, would be a violation of regulations. Wouldn't that be a fact?

Mr. BAKKE. I am not satisfied that that would be the case, sir.

Mr. DINGELL. If it did occur within an airway would it not be a violation?

Mr. BAKKE. No, sir; I am not satisfied that it would be.

Mr. DINGELL. An aircraft that would be, for all intents and purposes, operating blind except for one specific objective would then be violating such regulations if in fact it was operating in that manner?

Mr. BAKKE. Sir, if you are referring to the regulation which the Board adopted yesterday, my answer is categorically "Yes." Any aircraft that was, for all practical purposes, flying blind in such an area would be in violation of the rule which was adopted yesterday, clearly.

Mr. DINGELL. Let me ask you two more questions then.

Have you established within your own satisfaction that this F–89 was, within the meaning of the regulations and the law, a military aircraft?

Mr. BAKKE. Sir, I have to beg your indulgence in this respect also.

It is my own private judgment that it was a public aircraft within the meaning of the act. It was owned by the Air Force.

True, it was operated under bailment by Northrup. But we have examined related questions several times in the last several years, and I would say that in my own judgment this airplane was a public aircraft, a military aircraft within the meaning of the act; yes, sir.

Mr. DINGELL. Just one last question then.

It appears that we have a situation here where you can, for all intents and purposes, regulate civil aircraft in all manner of ways necessary to preserve the public safety. It appears that your authority presently, either because of regulations issued by your own body or laws of Congress, is not sufficient, let us say, to regulate military aircraft in the fullest manner possible.

Is that a fact?

Mr. BAKKE. Yes; that is true. And we think this was the intent of Congress in the Civil Aeronautics Act.

Mr. DINGELL. It would appear then that at least one crash has resulted from the fact that you were unable to properly administer the flight plans and so forth of military aircraft.

Mr. BAKKE. I am not certain that I could answer that affirmatively, sir.

Mr. DINGELL. What I am trying to get down to is this: Would you say then that it would be advisable for the Congress and for your own

authority to look into the possibility of, let us say, giving you power to regulate the flight of military aircraft in the same way you regulate civil?

Mr. BAKKE. May I answer that question this way: When we reanalyzed the flight-testing problem the Board found that its authority was adequate within the air-traffic rules to take care of this problem. Whether there are any other problems that require a broadening of the Board jurisdiction I am not prepared to say. But so far as this kind of problem is concerned, the flight testing of military aircraft, we are satisfied at this time the jurisdiction of the Board with respect to air-traffic rules gives the Board sufficient authority, and that the Board has, by the adoption of the rule which was adopted yesterday, as best we are able to determine at the moment, adopted an effective means of dealing with that problem.

I would say right now, considering the problem that has the attention of the committee, there is no lack of jurisdiction in the Board.

Mr. DINGELL. Will you just tell me this one last thing then: How many collisions between military and civil aircraft have occurred within the last year or so?

Mr. BAKKE. Within the last year or so?

I am afraid I would be guessing. I know of none with the exception of this.

The only bit of data that I am clear on is one that I undertook to investigate myself, and that was that there has never been, to my knowledge, any other collision involving test aircraft.

The CHAIRMAN. Mr. Alger?

Mr. ALGER. Mr. Bakke, do you think that the speed of the airplanes and the rate of closure might possibly have placed the point of impact well outside of the airway? That is, so that they might not have been over a congested area at time of collision?

Mr. BAKKE. I think that is a possibility. I think the most honest answer is, I don't know. I really have not explored the geography of the situation sufficiently to give a good answer. I know only generally that it is close to the northeast edge of the airway, and conceivably it could have taken place outside.

Mr. ALGER. Do you believe that the speeds of the planes today and the density of air traffic all over this country might not require the control of all airspace at all altitudes over all sections of the country?

Mr. BAKKE. Sir, I do not think that this is a requirement at this time.

Conceivably, when our capabilities are much improved and when the situation changes so far as the operating characteristics of aircraft are concerned, including their speeds, for instance, conceivably that day is not too far off.

Mr. ALGER. Short of that, to that degree we are not protecting ourselves in preventing accidents. Is that not correct?

Mr. BAKKE. That I think is a fair statement, sir.

Mr. ALGER. Next, obviously tests should be carefully controlled. We have agreed on that.

Third, is it not also true that pilots and crew members who are testing and who are instrument pilots, green card carriers, and others, the more able they are and competent in the cockpit the more they rely on instruments? Is that not correct?

Mr. BAKKE. I think, sir, something in that order can be fairly said. I think it is true——

Mr. ALGER. I am not trying to pin it down.

Mr. BAKKE. I think it is true that with increasing experience there does become an increasing dependence upon instruments, yes. I think something of that order can be said.

Mr. ALGER. The better the test pilot, the better the testing procedures that are going into Douglas, the more carefully those men would be observing instruments, writing it down, bending over to pick up a piece of paper and many other things relative to that?

Mr. BAKKE. Right.

Mr. ALGER. If then their testing work keeps them within the cockpit, and their vision outside is limited, it gets back to the matter of human eyesight. So my next question is this, that the reliance on the eyesight of the pilot will always leave a large element of human error, will it not? Reliance on eyesight whether it is in testing or in all visual flight because of the airplane, the construction of the airplane and the limited vision. Is that not correct?

Mr. BAKKE. Well, sir, we don't admit of it. As a matter of fact——

Mr. ALGER. In other words, you cannot see down or sideways.

Mr. BAKKE. That is clearly true.

I think from that point of view we could say that there is serious limitation, yes, sir.

Mr. ALGER. All right.

We know, however, that some human error can be compensated for, if not entirely, by electronic devices or by possibly some proximity or approaching aircraft warning device.

Mr. BAKKE. Yes, sir.

Mr. ALGER. Now, getting back to your regulation, I see here a regulation which you feel may cure a part of the trouble, in which it says "such as use of a competent observer in the aircraft or chase aircraft, or other appropriate arrangement."

Appropriate arrangement to us at the moment means almost nothing. But as to the competent observer, I recall many instances when, with 4 observers looking into the 4 quadrants, in effect, that is above, below, front and back, there have been, through human error, negligence, not looking outside the plane, many near misses.

How then can we, with even competent observers, prevent accidents like this? With 1 observer, where would he be stationed in the plane so that he could see in all 4 directions while the pilot's head is buried in instruments?

Mr. BAKKE. Sir, the answer to that question must take account of the degree of preocupation which might exist. If the pilot, for instance, is for a period of some seconds required to concentrate on his directional gyro or his altimeter, it may be reasonable to augment the vigilance which he normally should exercise by a man who could stand, for instance, between the pilot and the copilot and would have fairly good coverage.

If it is the kind of preoccupation such as that which could be involved where the man is, for all practical purposes, flying on instruments and doesn't look out at all, it is conceivable that more than 1 observer would be necessary, perhaps 1 on each side of the airplane.

The complete answer to your question would require a knowledge of the size of the cockpit and the accessibility of the window areas to observers and so on.

I think that a real useful purpose can be served notwithstanding the limitations which the shape and configuration of the airplane impose on that observer.

Mr. ALGER. I commend you for this. I am not trying to find fault with the regulations. I am looking, in a small degree, to correct the problem.

My summary is this:

We must correct it in two ways, either or both: through control of the airspace and the equipment traveling in that space from the ground, or wherever they are who are controlling it; and, secondly, through various electronical warning signals, automatic warning signals to tell the pilot when his eyes or human error fail to observe other aircraft.

Short of these two I do not see, for all the congressional hearings and other accidents that may or may not occur, that we would correct this with so many aircraft traveling at such fast speeds.

I want to conclude by telling you how impressed I am with the testimony you have offered today and your own knowledge of the subject.

Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Loser?

Mr. LOSER. I have nothing at all, Mr. Chairman.

The CHAIRMAN. Dr. Neal?

Mr. NEAL. Mr. Chairman, I, too, want to congratulate the speaker for the illuminating explanation of his problems and those that confront us.

While I am not an aviator and have no knowledge of aviation, I certainly can recognize from this discussion that there are many problems, and I am glad to know that our leaders are attempting to solve those as time goes on.

The problems develop to complicate things more and more, and, after all, to create safety in the interest of all of our people is one of our objectives.

Thank you.

The CHAIRMAN. Mr. Bakke, I want to join the others in complimenting you on the very effective way you have presented the problem this morning with the information you have up to this time.

As I have said previously, we are, of course, interested in the immediate, unfortunate tragedy, but we are and should be equally or perhaps more interested in the long-range view in order to prevent any such tragedy in the future if we can. And I know that you have the same interest in mind.

Does the Air Force join you in the investigation out there or does it conduct its separate investigation?

Mr. BAKKE. The information which was available to me through the military sources or the military personnel whom I contacted in the area was that there was to be no separate military investigation or no separate Air Force investigation. They were relying on the Civil Aeronautics Board to handle the whole of the investigation.

As of Sunday there were no military personnel participating with the Board in the investigation.

After our conversation on Sunday, however, I was led to understand that arrangements had been made for the participation or the assistance of the Air Force in the investigation. I was advised yesterday that a group of people or some people are proceeding or were proceeding yesterday from Wright Field to assist the Board's investigations on the scene.

The CHAIRMAN. A group of Air Force people?

Mr. BAKKE. Air Force people.

The CHAIRMAN. Now your responsibility insofar as the military is concerned is in connection with safety and traffic control?

Mr. BAKKE. Yes, sir. The safety of persons on the ground or in the air.

The CHAIRMAN. And the promulgation of air traffic control regulations?

Mr. BAKKE. Yes, sir.

The CHAIRMAN. Does the military use the CAA ground facilities in connection with their flight operations?

Mr. BAKKE. That is correct, sir.

The CHAIRMAN. On February 1, the day following this tragedy, the Board issued a press release in which you point up what the Board has undertaken to do. You also call attention to the regulations relating to flight testing, and you have outlined those, 1, 2, 3.

That should go into the record. Without objection, the press release will be included in the record.

(The document referred to follows:)

CIVIL AERONAUTICS BOARD

Washington, D. C.

FEBRUARY 1, 1957.

James R. Durfee, Chairman of the Civil Aeronautics Board, and James T. Pyle, Administrator of Civil Aeronautics, today announced that the accident involving a DC–7B and an F–89 over Pocoima, Calif., is under intense investigation.

Safety specialists from the CAB's Washington and field offices have proceeded to the scene of the accident to insure completion of the investigation as expeditionsly as possible.

The information currently available concerning the facts surrounding this tragedy is not yet sufficiently complete, Durfee and Pyle said, to permit any conclusions to be reached concerning probable cause. In fact, many details of the two flights are not known at this time. In response to many inquiries, however, the two officials issued the following statement concerning policies and procedure of the Federal Government relating to the flight testing of aircraft in the vicinity of congested areas:

1. The manufacturer of an aircraft for which an airworthiness certificate has not yet been issued must obtain a special test flight authorization from CAA.

2. Such authorization specifically provides that "flights, except takeoffs and landings, (are) prohibited over thickly populated areas or large gatherings of people."

3. The DC–7B involved in this accident, Pyle said, had such an authorization certificate which carried this operating limitation.

Military aircraft are not subject to these operating limitations, but are subject to the air-traffic rules of part 60 of the Civil Air Regulations promulgated by the CAB. Part 60 prohibits both civil and military aircraft from being flown in any unusual maneuvers over congested areas or on civil airways. Part 60 also provides that, where no restrictions to visibility exist and where cloud conditions permit, operation in accordance with visual-flight rules does not involve any limitations imposed by air-traffic control.

The Board and the Administrator stressed the fact that the application of any or all of the foregoing policies and procedure to this accident is not at this time

known with certainty. However, existing policies and procedure shall be reviewed as a matter of urgency in the light of the facts which will be disclosed in the investigation which is underway.

The problems arising from the flight testing of production and experimental aircraft have long been the subject of considerable attention on the part of the Government. In 1947, an extensive study was undertaken by the civil and military agencies concerned, with a view toward determining the safeguards which should be applied to prevent the creation of a public hazard. At that time it was agreed that it would be impracticable to relocate aircraft-manufacturing establishments outside highly populated areas but that the flight testing of production and experimental aircraft should be accomplished in sparsely settled areas and in airspace of relatively light traffic density. Since then, considerable effort has been made to insure that flight-testing activity is in fact conducted under circumstances in which hazard to persons on the ground or to other aircraft in flight will not result.

Meanwhile, CAA Administrator Pyle today directed CAA regional administrators to encourage voluntary establishment of additional areas for test flying in sparsely populated, light-air-traffic locations. They were instructed to seek the cooperation of military authorities, repair services, and others whose test-flying activities are not covered by the existing regulation on production flight testing.

The CHAIRMAN. The first point made is with reference to the airworthiness certificate for the manufacturer of an aircraft, which you have explained. Then you call attention to the regulations of the Board, stating that—

Such authorization specifically provides that "flights, except takeoffs and landings," (are) prohibited over thickly populated areas or large gatherings of people.

Now, that must have been for some reason.

Mr. BAKKE. That is right.

The CHAIRMAN. I assume that in issuing this release the Board could have had no other purpose than calling the regulation to the attention of the public, and letting the public decide whether or not this was a congested area, or, using your own words—

thickly populated areas or large gatherings of people.

Now, the third point made was that the DC–7B involved in this accident, so Mr. Pyle said, had such an authorization certificate which carried this operating limitation.

That being true, I cannot see anything else except dereliction on the part of someone. Whether it was willful or by accident or carelessness, it would appear in violation of the rules.

Everyone who goes into the air on a flight today does so with a knowledge of what the regulations are, or he should know. Is that true?

Mr. BAKKE. Yes, sir.

The CHAIRMAN. Therefore, it would seem to me that the Board's announcement on February 1 was a clear indication that, if the public thought this was over a thickly populated area where there were large gatherings of people, somebody was at fault and there was gross negligence when it happened. That is the way I interpret the real purpose of the announcement the next day following this tragedy.

Also, it was announced that the various CAA regional administrators were directed to encourage the cooperation of military authorities and others in the establishment of test areas. Is that true?

Mr. BAKKE. Yes, sir.

The CHAIRMAN. Voluntary cooperation.

Mr. BAKKE. Yes, sir. This was an action which was taken by the Administrator, Mr. Pyle.

The CHAIRMAN. Now, when attention was called to the fact that this was merely a suggestion and would not reach the problem fully—which was done on Saturday—I want to compliment the Board for immediately following up with the action that was taken when you made it compulsory by regulation, as you announced on February 5. Let's have it clear. Does the military come under this regulation?

Mr. BAKKE. Yes; it does, sir.

The CHAIRMAN. And the Civil Aeronautics Administration is in a position to see that the military complies whenever the Administrator takes action?

Mr. BAKKE. Yes, sir.

The CHAIRMAN. I want to compliment the Board on this procedure, and I am very glad that this action was taken.

Radar testing was the purpose of this military flight, was it not?

Mr. BAKKE. Yes, sir.

The CHAIRMAN. Now, I appreciate the difficulty and the responsible position that the Board has in trying to issue the proper regulations. I appreciate very much the job of the Civil Aeronautics Administration in administering its program and enforcing these regulations.

But I cannot help having the feeling that there is too much "softie" in this business. There is too much of an attitude that we are afraid we might incur the ill will of somebody, that some airline, or some manufacturer, or someone in the military might be offended if you cut down on them too hard, or if there is an indication that somebody is at fault, some person or company or group is at fault. They get upset and say, "This ought not be placed on me."

But I think the time has come, Mr. Bakke, when we have got to change our methods. I think that the American people have this same feeling. And I believe that those people with whom you are associated are going to have to come to it if it is not already fully realized. We have got to place the responsibility on somebody and let the blame rest on those responsible. That is going to be pretty hard on somebody, but when these things happen—and they are going to occur—something must be done.

We are coming into an age—in fact, we are already there—where these jets are traveling and maneuvering all over the sky at high speeds, as you have explained.

This policy which we have been depending upon, of "see and be seen," is simply fading out of the picture with the type of aircraft we are now flying. And, as Mr. Alger said a while ago, the only way that we are going to have any degree of safety is to fully realize this. And those who are charged with the responsibility are going to have to let the hammer down in enforcing rules of safety. You are simply going to have to say to John Doe or whoever is responsible that the safety regulations are going to be enforced because the lives of people are involved.

As you said a moment ago, you don't need any further authorization. You apparently have all the authority that you need to see that these things are enforced and complied with. And I am just saying this from my limited experience in the field of these investigations that we have had, that if we don't do it, there are a lot of other policies that are going to have to be looked at with reference to changes in the regulations. And we might as well let it be known that if the Board or the CAA need any additional authority or any

help or any support, I am sure you can come to the Congress and get all you need.

I know it is going to sound harsh, but the saving of lives is involved here, not only in the air but on the ground and in our homes. And I don't think we can be too severe about this thing at all. You can't afford to be soft or afraid you are going to rub somebody's back the wrong way. I don't care who it is, the military, the airlines, the Administrator, or the operator. I think everybody is going to have to tighten up if we are going to be successful in the jet age on which we are already embarked.

If there is no objection, we will have your release of February 5 and the new regulation regarding flight testing included in the record at this point, too.

(The material referred to follows:)

CIVIL AERONAUTICS BOARD

Washington 25, D. C.

FEBRUARY 5, 1957.

The Civil Aeronautics Board declared today that all aircraft test flights are to be made over open water or sparsely settled areas approved by the Administrator of Civil Aeronautics.

In addition to designating the Administrator to approve all flight test areas, the Board stressed its concern with possible abnormal pilot preoccupation with cockpit duties and amended its Civil Air Regulations to provide that any flight operation that requires more than normal preoccupation with cockpit duties may constitute careless or reckless operation of aircraft.

The Board emphasized that the amendments fall within the air traffic rules of the Civil Air Regulations which apply to both civil and military planes. These rules already prohibit unusual maneuvers over congested areas or on civil airways.

Civil aircraft lacking airworthiness certification were heretofore forbidden to fly over thickly populated areas or large gatherings of people, but this rule did not apply to military aircraft.

Last Thursday's flight test collision near Van Nuys, Calif., pointed up the need for regulations covering all flight testing, both civil and military. The Board emphasized that it is intensively investigating the California accident and that it has reached no conclusions with respect to its probable cause. The new rules are designed, however, to reduce the chance of midair collisions and enhance both air and ground safety.

"Flight test" is defined by the Board in its new rules today as operation of aircraft in flight for the purpose of testing, observing, or measuring the performance of an aircraft, airframe, powerplant, or propeller after its manufacture or major alteration, except for takeoff, landing, and operation to and from the area authorized for such flight tests.

The Board's existing definition of "alteration" is "any appreciable change in the design of an airframe, powerplant, propeller, or appliance."

The Board said that it took this immediate action without the usual rule-making procedure involving notice to interested parties. However, until March 21, 1957, these parties will be permitted to file written comments which will be considered by the Board. The amendments to the regulations, however, become effective February 20, 1957, giving the Administrator 15 days to make necessary preparations.

CIVIL AERONAUTICS BOARD

Washington, D. C.

*Civil Air Regulations Amendment 60–1*

Effective: February 20, 1957.
Adopted: February 5, 1957.

AIR TRAFFIC RULES

PILOT VIGILANCE AND RESTRICTIONS ON FLIGHT TESTING

Part 60 of the Civil Air Regulations sets forth the air traffic rules which are applicable to all aircraft. These rules contain provisions prohibiting both civil and military aircraft from being flown in any unsual maneuvers over congested areas or on civil airways and prescribe certain minimum altitudes for the protection of persons or property on the ground. Although there are no specific provisions in part 60 dealing with flight testing, all civil aircraft for which an airworthiness certificate has not yet been issued are prohibited from flying over thickly populated areas or large gatherings of people by limitations set forth in special test flight authorizations issued by the Administrator. Military aircraft, however, are not subject to these specific limitations.

The problems arising from the flight testing of production and experimental aircraft have long been the subject of considerable attention on the part of the Government. In 1947 an extensive study was undertaken by the civil and military agencies concerned, with a view toward determining the safeguards which should be applied to prevent the creating of a public hazard. At the time it was agreed that it would be impracticable to relocate aircraft manufacturing establishments outside highly populated areas but that the flight testing of production and experimental aircraft should be accomplished in sparsely settled areas and in airspace of relatively light traffic density. Although considerable effort has been made to insure that flight testing activity is in fact conducted under circumstances in which hazard to persons on the ground or to other aircraft in flight will not result, the recent collision of aircraft undergoing certain tests in flight necessitates the immediate promulgation of amendments to part 60 which will reduce the possibility of midair collision and further enhance the safety of persons or property on the ground.

These amendments herein adopted prohibit the flight testing of aircraft unless such flight test is conducted (1) over open water or sparsely populated areas having light air traffic and approved by the Administrator, or (2) within a flight test area designated by the Administrator. This regulation also provides that all flight tests are to be conducted in accordance with such traffic rules which the Administration may from time to time prescribe.

In order to achieve the above mentioned objectives, we are including within the term "flight tests," the operation of all aircraft in flight for the purpose of testing, observing, or measuring the performance of an aircraft, airframe, powerplant, or propeller after its manufacture or major alteration, except for takeoff, landing, and operation to and from the area authorized for such flight tests.

In addition to the regulatory change dealing with flight testing, the Board is also concerned with the problems relating to flight operations requiring more than normal preoccupation with cockpit duties. In order to stress the importance of vigilance on the part of the pilot to observe and avoid other air traffic, the regulation amends section 60.12 (c) by calling attention to the fact that lack of vigilance due to more than normal preoccupation with cockpit duties may constitute careless or reckless operation of aircraft.

For the reasons stated above, it is the opinion of the Board that a situation exists requiring immediate action in respect to safety in air commerce and that notice and public procedure hereon are impracticable and contrary to the public interest, and the Board finds that good cause exists for making this amendment effective on less than 30 days' notice.

Interested persons desiring to present written data setting forth their views with respect to the rules herein adopted are requested to submit such matter to the Board on or before March 22, 1957. All communications so received will be considered by the Board and the rules herein adopted will be reconsidered fully in the light of the comments submitted.

In consideration of the foregoing, the Civil Aeronautics Board hereby amends part 60 of the Civil Air Regulations (14 C. F. R., pt. 60, as amended) effective February 20, 1957.

1. By amending paragraph (c) of the note under section 60.12 to read as follows:

"*60.12 Careless or reckless operation.* * * *

"NOTE. * * *

"(c) Lack of vigilance by the pilot to observe and avoid other air traffic. In this respect, the pilot must clear his position prior to starting any maneuver, either on the ground or in flight. Furthermore, flight activities requiring such crew preoccupation with cockpit duties as to prevent adequate vigilance outside the cockpit for the purpose of collision avoidance shall be evidence of careless or reckless operation unless some provision is made which adequately compensates for such reduced degree of vigilance such as use of a competent observer in the aircraft, a chase aircraft, or other appropriate arrangements.

2. By adding a new § 60.24 and a note to read as follows:

"*60.24 Flight test.* No person shall flight test an aircraft unless such flight test is conducted (1) over open water or sparsely populated areas having light air traffic and approved by the Administrator; or (2) within a flight test area designated by the Administrator. All flight tests shall be conducted in accordance with such traffic rules as the Administrator may from time to time prescribe."

NOTE.—It should be recognized that any flight operation that requires more than normal preoccupation with cockpit duties may result in careless or reckless operation of aircraft. See example (c) under section 60.12 of the Civil Air Regulations.

3. By adding a new definition to § 60.60 to read as follows:

"*60.60 Definitions.* * * *

"*Flight test.* "Flight test" means the operation of aircraft in flight for the purpose of testing, observing, or measuring the performance of an aircraft, airframe, powerplant, or propeller after its manufacture or major alteration (as defined in pt. 18), except for takeoff, landing and operation to and from the area authorized for such flight tests."

(Sec. 205 (a), 52 Stat. 984; 49 U. S. C. 425 (a). Interpret or apply secs. 601, 1005, 52 Stat. 1007, 1023, as amended; 49 U. S. C. 551, 645, and sec. 4 (a), 60 Stat. 238; 5 U. S. C. 1003 (a).)

By the Civil Aeronautics Board:

[SEAL] M. C. MULLIGAN, *Secretary.*

(Part 60 last printed September 10, 1955.)

The CHAIRMAN. You referred to one other just adopted this morning.

Mr. BAKKE. Yes, sir.

The CHAIRMAN. What did you call that?

Mr. BAKKE. I believe it was Civil Air Regulations Amendment 60–2 and Civil Air Regulations Amendment 43–4.

The CHAIRMAN. Let that be included, too, so we can have a record of the action and what you are doing in connection with this situation.

(The material referred to follows:)

CIVIL AERONAUTICS BOARD

Washington, D. C.

*Civil Air Regulations Amendment 60–2*

Effective: March 15, 1957.
Adopted: February 6, 1957.

AIR TRAFFIC RULES

VISUAL FLIGHT RULE (VFR) MINIMUMS WITH CONTROL ZONES FOR FLIGHTS WITH TRAFFIC CLEARANCE, AND SPEED CONTROL AND COMMUNICATIONS RULES IN HIGH DENSITY AIR TRAFFIC ZONES

Part 60 of the Civil Air Regulations contains the visibility and distance from cloud minimums for VFR flights within a control zone. Where a traffic clearance has been issued, an aircraft may be operated at lower minimums than when one is not issued; however, current regulations do not specify what the reduced visibility and distance from cloud minimums shall be when such air traffic clearance is issued. The Board proposed to clarify this situation in Draft Release 56–7 (21 F. R. 1748).

The requirements of part 60 for VFR flights in control zones do not distinguish between control zones of varying traffic densities. In order to determine whether special limitations should be applied in part 60 for areas in the vicinity of airports having unusually high traffic densities, Special Civil Air Regulation SR–408A was promulgated by the Board. This special regulation delegated to the Administrator sufficient authority to permit him to designate a "high density air traffic zone" in the Washington, D. C., area and to establish special operating rules in the zone on a temporary basis. These special rules were designed to facilitate movement of traffic in the zone under VFR conditions in a safer and more efficient manner. SR–408A terminated on July 31, 1956. At a result of the experience gained under SR–408A, a notice of proposed rule-making was published as Draft Release 56–22 (21 F. R. 6302), Speed Control and Communication Rules for Sertain High Density Airports, which contained proposals for the addition to part 60 of certain provisions especially applicable to high density areas.

Certain matters set forth in Draft Releases 56–7 and 56–22 were, pursuant to notice, the subject of oral argument before the Board on January 14, 1957.

The objective of Draft Release 56–7 was to establish specific visibility and distance from cloud minimums below which VFR flight in a control zone would be prohibited. It was proposed to establish 1 mile as the visibility minimum for a VFR flight in a control zone (one-half mile exception if the restriction to visibility were of a local nautre) and to require that all VFR flights remain "clear of clouds."

The views expressed by the interested parties, both in written comment and oral argument, varied from the belief that the weather minimums proposed by the Board were unnecessarily and unduly restrictive, particularly with respect to general aviation, to the belief that the Board's proposal did not go far enough in the way of imposing restrictions on VFR flight within control zones.

After careful consideration of all of the views expressed on this subject, the Board has concluded that with one minor exception the proposal as contained in Draft Release 56–7 is not unduly burdensome and is necessary in the interest of safety. In fact, the Board has already established by regulation the principle that in uncontrolled airspace a minimum of one-mile visibility is necessary in order that a VFR pilot may properly control the altitude and fight path of his aircraft by visual observation of the ground, and that he may be able to avoid collision with terrain or surface obstacles. The same objective is sought by the proposed visibility minimum in control zones.

The Board also proposed to prescribe a visibility minimum for helicopter operatons. However, upon evaluation of the views expressed in regard to this proposal, the excellent safety record of helicopter operations, and the unique flight characteristics of helicopters, the Board is of the opinion that safety considerations do not require the application of separate visibility minimums to helicopters at this time.

The objective of Draft Release 56–22, Speed Control and Communication Rules for Certain High Density Airports, was to delegate to the Administrator the authority to designate a high density air traffic zone in which a speed limit and two-way radio communications would be required.

The comments made with respect to the proposed speed-limit rule indicated an almost unanimous agreement that such a rule would enhance the safety of flight operations in a high density zone.

With respect to the two-way radio communication requirement, it is found that there is agreement on the need for a rapid exchange of intelligence between the airport traffic control tower and all pilots in order to accomplish a safe and efficient movement of traffic at a high density airport; however, there is a divergence of views as to the extent of the area in which the two-way radio requirement would be applicable. It is the view of some that the communication requirements should apply to the entire zone, while others believe the rule should apply only to those aircraft taking off or landing at the high density airport. It appears unlikely that the Admiinstrator will be able to control all the VFR traffic within such a zone or, in fact, even handle effectively the volume of communications which such requirement would create. Accordingly, it appears advisable at this time to require communication with the apropriate traffic control facilities from aircraft engaged in VFR flight only when the pilot intends to take off or land at or fly within the traffic pattern of designated airports within the high density zone.

Interested persons have been afforded an opportunity to participate in the making of these amendments (21 F. R. 1748 and 21 F. R 6302), and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, the Civil Aeronautics Board hereby amends part 60 of the Civil Air Regulations (14 CFR, pt. 60 as amended) effective March 15, 1957.

1. By amending section 60.18 by adding a new paragraph (f) to read as follows:

"*60.18 Operation on and in the vicinity of an airport.* * * *

"(f) *High density air traffic zone.* In any area not above 3,000 feet above the surface in which the Administrator finds that the volume of traffic is such as to adversely affect safety, he shall designate such airspace as a high density air traffic zone in which the following rules shall apply:

"(1) *Speed.* No person shall operate an aircraft within a high density air traffic zone at a speed in excess of 180 miles per hour or 160 knots indicated airspeed unless operational limitations for a particular aircraft require greater airspeeds, in which case the aircraft shall not be flown in excess of the minimum speed consistent with the safe operational limitations of the aircraft.

"(2) *Communications requirements.* No person shall take off or land an aircraft at or enter the traffic pattern of a designated high density airport unless radio communication with the appropriate air traffic control facility has been established: *Provided,* That an aircraft not equipped with functioning two-way radio may be operated to or from an airport located within the zone if prior authorization from the appropriate airport traffic control tower has been given."

2. By amending section 60.30 (a) (1) and (2) and by adding a note thereafter to read as follows:

"*60.30 Ceiling and distance from clouds.* * * *

"(a) *Within control zones.*

"(1) Unless a clearance has been obtained from air traffic control, aircraft shall not be flown beneath the ceiling when the ceiling is less than 1,000 feet; or closer than 500 feet vertically under, 1,000 vertically over, or 2,200 feet horizontally from any cloud formation.

"(2) When operating in accordance with a clearance issued by air traffic control, aircraft shall remain clear of clouds."

NOTE.—With respect to this section, an air traffic clearance obtained under these provisions does not constitute authority for the pilot to deviate from section 60.17 or any other applicable provision of the Civil Air Regulations.

3. By amending section 60.31 (a) and (b) to read as follows:

"*60.31 Visibility.*

"(a) *Ground visibility within control zones.*

"(1) Unless a clearance has been obtained from air traffic control, a pilot shall not take off or land an aircraft at an airport within a control zone or enter the traffic pattern of such an airport when the ground visibility is less than 3 miles.

"(2) When operating in accordance with a clearance issued by air traffic control, a pilot shall not take off or land an aircraft, other than a helicopter, at an airport when the ground visibility is less than 1 mile: *Provided*, That where a local surface restriction to visibility exists, such as smoke, dust, or blowing snow or sand, the minimum visibility is one-half mile, if all turns after takeoff and prior to landing and all flight beyond 1 mile from the airport boundary can be accomplished above or outside the area so restricted.

(b) *Flight visibility within control zones.*

"(1) Unless a clearance has been obtained from air traffic control, a pilot shall not operate an aircraft in flight within a control zone when the flight visibility is less than 3 miles.

"(2) When operating in accordance with a clearance issued by air traffic control, a pilot shall not operate an aircraft, other than a helicopter, within a control zone when the flight visibility is less than 1 mile: *Provided*, That such aircraft may take off or land at an airport within a control zone or enter the traffic pattern of such an airport when the minimum visibility is one-half mile due to a local surface restriction such as smoke, dust, or blowing snow or sand, if all turns after takeoff and prior to landing and all figiht beyond 1 mile from the airport boundary can be accomplished above or outside the area so restricted."

(Sec. 205 (a), 52 Stat. 984; 49 U. S. C. 425 (a). Interpret or apply sec. 601, 52 Stat. 1007, as amended; 49 U. S. C. 551.)

By the Civil Aeronautics Board:

[SEAL] M. C. MULLIGAN, *Secretary.*

(Part 60 last printed September 10, 1955.)

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CIVIL AERONAUTICS BOARD

Washington, D. C.

*Civil Air Regulations Amendment 43–4*

Effective: March 15, 1957.
Adopted: February 6, 1957.

GENERAL OPERATION RULES

VFR MINIMUMS WITHIN A CONTROL ZONE FOR FLIGHTS ISSUED A TRAFFIC CLEARANCE

Part 60 of the Civil Air Regulations contains the air traffic rules governing the operation of aircraft. Section 60.31 currently authorizes air traffic control to permit flight within a control zone when the flight and ground visibility are below the specified 3-mile minimum. This provision was intended to permit a pilot to fly from a control zone to an area outside of controlled airspace in which the visibility minimum for VFR flight is 1 mile. Part 43 prohibits a pilot from flying an aircraft under instrument flight rules unless he holds a valid instrument rating issued by the Administrator and unless he satisfies certain recent flight experience requirements.

It has come to the Board's attention that some pilots who are not rated to fly their aircraft solely by reference to instruments were obtaining a traffic clearance and flying through solid overcast or in conditions of restricted visibility and, consequently, were a hazard to themselves and others. In order to clarify the Board's intention that such flights not be conducted, certain amendments to the Civil Air Regulations were proposed in draft release 56–7, (21 F. R. 1748) "VFR minimums within a control zone for flights issued a traffic clearance." The foregoing draft release proposed to establish in part 60 specific weather minimums below which VFR flight could not be conducted. In addition, amendments to sections 43.65 and 43.68 (d) of part 43 were proposed to make it clear that these sections are intended to prohibit a non-instrument-rated pilot, as well as an instrument-rated pilot who has not met the recent experience requirements for instrument flight, from operating aircraft in weather conditions below the minimums prescribed in part 60 for VFR flight.

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Interested persons have been afforded an opportunity to participate in the making of these amendments (21 F. R. 1748), and due consideration has been given to all relevant matters.

In consideration of the foregoing, the Civil Aeronautics Board hereby amends part 43 of the Civil Air Regulations (14 CFR, pt. 43, as amended) effective March 15, 1957.

1. By amending section 43.65 to read as follows:

"*43.65 Instrument flight limitations.* No person shall pilot an aircraft under instrument flight rules or in weather conditions less than the minimums prescribed for flight under visual flight rules unless he holds a currently effective instrument rating issued by the Administrator."

2. By amending the first sentence of paragraph (d) of section 43.68 by inserting after the word "rules" and before the word "unless" the words "or in weather conditions less than the minimums prescribed for flight under visual flight rules".

(Sec. 205 (a), 52 Stat. 984, 49 U. S. C. 425 (a). Interpret or apply secs. 601, 602, 610, 52 Stat. 1007, 1008, 1012, as amended; 49 U. S. C. 551, 552, 560.)

By the Civil Aeronautics Board:

[SEAL] M. C. MULLIGAN, *Secretary.*

(Part 43 last printed October 1, 1954.)

The CHAIRMAN. I regret that we have not concluded even though we have run past noon.

In addition to the session of the House this afternoon, there will be a conference of the minority, I understand, immediately following adjournment.

We hope that that will be concluded by 3 o'clock.

At 3 o'clock we will resume, at which time Mr. Matthews will go into the accident in New York.

The committee will recess until 3 o'clock.

(Whereupon, at 1:10 p. m., the committee was recessed, to be reconvened at 3 p. m., this same day.)

AFTERNOON SESSION

The CHAIRMAN. Let the committee come to order.

Our next witness is Gordon R. Matthews, Assistant Chief, Investigation Division, Bureau of Safety, Civil Aeronautics Board who will discuss the investigation, thus far, of the terrible tragedy that occurred in New York on last Friday.

## STATEMENT OF GORDON R. MATTHEWS, ASSISTANT CHIEF, INVESTIGATION DIVISION, BUREAU OF SAFETY INVESTIGATION, CIVIL AERONAUTICS BOARD

Mr. MATTHEWS. Mr. Chairman, at approximately 6:30 p. m. on February 1, the Civil Aeronautics Board's New York office, and namely investigator in charge of that office, Mr. Joseph O. Fluet, was notified that an accident had occurred to a Northeast Airlines aircraft, Douglas DC–6, AN34954, which was operating as flight 823, and that the accident had occurred on Rikers Island, East River, New York, N. Y., at approximately 6:02 p. m.

Mr. Fluet assigned two of the investigators that the Board has in New York, Mr. Searle and Mr. Van Epps, and himself, and they immediately proceeded to the scene of the accident. The Washington office was notified at approximately 7 o'clock, and additional personnel were dispatched to the scene, consisting of a powerplant and propeller specialist, and subsequently an electrical specialist.

Information obtained during the investigation, and which is of a preliminary nature only, as of last night, is as follows: Flight 823 of Northeast Airlines is a scheduled operation, operating as a nonstop flight to Miami, Fla. It was scheduled to depart New York at approximately 2:45 p. m., and the crew had boarded the aircraft, preparatory to departure at approximately 2:25. Upon arrival at the airplane, they found a considerable amount of snow on the aircraft and called for maintenance personnel to clean the snow off.

In the meantime, the flight was loaded. At approximately 3:50 p. m. it was determined that the snow could not be completely removed while it was sitting outdoors, as it was then snowing and had been snowing for some time, at a light to a moderate rate, and the aircraft was moved to what is known as a nose hangar, which encompasses the nose and wings of the aircraft, and additional snow removal and ice removal was accomplished there.

After approximately an hour and a half of operation in snow removal, the aircraft was then determined by the crew, both ground crew and flight crew, to be adequately clean so far as snow and ice was concerned, and the aircraft was moved back out on to the ramp, engines started and group clearance obtained for taxi to the end of the active runway, which was runway 4 at LaGuardia Field.

Upon arrival at that point, and following the normal check of engines and runoff prior to takeoff, and a request for clearance, they were delayed because of an inbound flight which had some problem relative to their approach and had been delayed more than normal. The delay on the end of the runway was approximately 20 to 30 minutes. They then got a clearance and proceeded with their takeoff on runway 4 at LaGuardia Airport.

Following becoming airborne, the crew, who lived through the occurrence, reported, specifically the flight engineer, that the engines and propellers in all respects were functioning normally and that there was no malfunction, dropoff or loss of power. The captain stated that the takeoff was normal, and the airplane itself functioned normally, and that the first indication of a problem that he experienced was following his first segment of climbing, when he had approximately 125 knots plus. He called for zero flaps. The aircraft accelerated. He had a good climb indication, and when reaching approximately 140 knots he called for the first reduction of power, known as maximum except takeoff power, for a continuation of climb, and at that time experienced a sinking of the aircraft or recognized a sinking of the aircraft.

The first officer, or copilot, was engaged in, first, raising the gear and then raising the flaps at the captain's command, and occupied within the cockpit; and shortly after the captain had called for zero flaps, the copilot has reported looking out and seeing the ground and exclaiming to the effect "ground coming up." The captain attempted to hold the aircraft off, was unable to, and they contacted the ground on Rikers Island. A flash, a brilliant flash, a fire or similar, was seen by the airport control tower, and that was the first report that went out relative to the accident.

From the heading of runway 4 the aircraft came to rest on Rikers Island, which is slightly to the northwest of LaGuardia Field, having made a turn in arc of approximately 130°. It touched slightly left wing low, longitudinally level, and then skidded across the country-

side, or the field, for approximately 2,500 to 2,600 feet before it came to rest. It caught on fire and the aircraft itself was practically completely demolished by impact and the subsequent fire.

Examination of the wreckage is continuing. The teams are working straight through. They started in the snow and they continued to work through the snow. The weather has improved and work is progressing a little bit faster now. The engines, the propellers, and the propeller mechanisms are all being removed to the shop for further teardown and minute examination. The instruments, or what is left of them, have been removed and will be taken to an electrical shop for teardown and determination, if possible, of any malfunction or any irregularity in those components.

The load on board the aircraft at takeoff was within gross allowable for Northeast Airlines operations, within the allowable set by the Civil Aeronautics Administration, and was under the allowable set by the flight dispatcher controlling the flight. The maximum allowable was 97,275 pounds, as set by the dispatcher, and the weight, and this is preliminary, gentlemen, and is subject to slight correction but it will not exceed the maximum, was 96,457 pounds.

There were 101 souls on board, and they consisted of revenue passengers as follows: 70 adults, 5 children with seats, meaning they were 2 years to 12 years of age, and 5 infants under 2 years, which would not be required to have seats. Nonrevenue were 14 passengers plus 1 infant requiring no seat. There were 20 fatalities including 1 child, and as of the last reading it is a little indefinite as to the total identified. Thirty-three persons are still hospitalized, as of yesterday, and 48 had been examined in varying degrees and had been released. All of the flight crew are alive and have made preliminary statements in interview, and their written statements are on the way to our New York board's office for further evaluation.

This particular flight crew had departed that morning from Miami with this same airplane and on their northbound flight had reported no irregularities or any malfunctions of equipment in any way, shape or form. The weather, at the time, the weather in which the flight was actually dispatched, was a regular and combined special report No. 15 made at 1728 eastern time by the United States Weather Bureau.

Precipitation ceiling 800; sky obscured; visibility three-quarter mile; light snow; fog; temperature 31; dew point 31; wind northeast 12; altimeter 30.12 and all runways covered by 2 inches of snow.

At 1739–E was another special report:

Precipitation, 500; sky obscured; visibility, three-quarter mile; light snow and fog; wind, north-northeast, 12; altimeter, 30.12.

The next report following the accident at 1806 was a special number, 17:

Precipitation ceiling, 800; sky obscured; visibility, three-quarter mile; light snow; fog; wind, north-northeast, 15; altimeter, 30.12.

The takeoff minimums for Northeast Airline at LaGuardia runway 4 are 200 feet and one-half mile. I believe, Mr. Chairman, in substance that covers the information that we have available at the present moment.

The CHAIRMAN. I thank you very much. I am sure there will be a good many questions, in view of the information which you have

given from your investigation thus far. We will start with Mr. Dollinger, since he lives in New York.

Mr. DOLLINGER. Thank you Mr. Chairman.

Mr. Matthews, I had been in the vicinity on the night of the disaster, because I was riding home at about 6 p. m. I was on the Triborough Bridge approach. I can tell you that the weather was very bad, because I had difficulty driving my car. I did not think a plane would take off that afternoon. The thing that concerns me now is the fact that this pilot, I think, had two prior accidents; did he not?

Mr. MATTHEWS. Of record we have two; yes, sir.

Mr. DOLLINGER. Had there been a suspension?

Mr. MATTHEWS. There had been one; yes, sir.

Mr. DOLLINGER. What happens after a man is suspended? How does he get back to fly a plane?

Mr. MATTHEWS. He appears before the Administrator, makes application for reinstatement, and takes the necessary test and examination as prescribed.

Mr. DOLLINGER. He was found to be qualified, and permitted to fly?

Mr. MATTHEWS. Yes, sir.

Mr. DOLLINGER. The newspapers stated that the decision to take this plane off the ground was entirely in the hands of the pilot; is that correct?

Mr. MATTHEWS. At the time, once he has been released, insofar as the dispatch release is concerned, from that time on, unless there is some knowledge coming to the dispatcher or operational personnel which they believe would render the flight unsafe, the pilot would be the deciding factor; yes, sir.

Mr. DOLLINGER. Can an airline decide to fly a plane regardless of the weather, or must they get the permission of the tower to take a plane off?

Mr. MATTHEWS. The tower——

Mr. DOLLINGER. I am not talking about the clearance of the runway. I am not asking you about that information. I want to know, if I were the owner of a plane, would I have the right to take that plane off in any kind of weather if I, in my judgment, decided it was safe enough for me to fly and wanted to fly?

Mr. MATTHEWS. I would have to qualify it. You would not have the right, because it might be illegal in accordance with civil air regulations. The tower only gives you clearance insofar as traffic is concerned, and not relative to your competency, the equipment of your airplane, or the conditions under which you can legally fly.

Mr. DOLLINGER. Is it correct to assume that the pilot had the right, and, of course, the airline, to determine whether it would care to fly that plane that afternoon?

Mr. MATTHEWS. That is their responsibility, sir.

Mr. DOLLINGER. And the tower only has the function to decide whether the traffic is clear enough so that the pilot could take off without hindering any other transportation in the air at the time; is that right?

Mr. MATTHEWS. The air-traffic-control tower only controls from the standpoint of traffic, and furnishes advisory information relative to other safeguards or potential hazards that might be within the area of operation of the aircraft.

Mr. DOLLINGER. Tell me, Mr. Matthews, how long were the passengers in the plane? Were they there all that afternoon, 2½ or 3 hours, waiting for the takeoff?

Mr. MATTHEWS. We do not have it tied down exactly, sir. I understand there was a lapse of time between the time they were first on the airplane and the time they reboarded when it was in the nose hangar. That is being determined as to the exact times. There was an appreciable delay in making these two determinations for safety reasons.

Mr. DOLLINGER. The newspapers stated that some of the passengers were anxious to get off the plane. They were a little concerned by the length of time it took for this plane to take off, they were a little concerned about the whole situation and wanted to get off. I do not know whether the correct word would be dissuaded or persuaded, but they were more or less compelled to stay on. Is there any truth in that, do you know?

Mr. MATTHEWS. We do not know, sir. All passengers will be interviewed and statements obtained from them, and also statements from any persons relative to the operation of the aircraft pertaining to the statements that they themselves might make.

Mr. DOLLINGER. What are the rights of the passengers? If a passenger is on a plane such as this, with a delay in time of takeoff, can the passenger get off the plane at any time before the actual takeoff?

Mr. MATTHEWS. That concerns purely the matter of the operation of the airplane, the owner of the aircraft. There is no Federal regulation.

Mr. DOLLINGER. And if the airplane owner refuses to let the passenger off, they have to stay on the plane regardless of whether they want to continue the flight or not?

Mr. MATTHEWS. That is a decision between the operator and the passenger.

Mr. DOLLINGER. You spoke before of the minimum requirements. You said that a plane had a maximum allowance weight on runway 4 of 97,275 pounds and that Captain Marsh's plane carried 96,457 pounds, or a differential of about 800 pounds.

Mr. MATTHEWS. 818 pounds, sir.

Mr. DOLLINGER. Is that allowance predicated upon any kind of weather or is that based upon good weather or bad weather? Is there a difference due to the kind of weather?

Mr. MATTHEWS. There is no difference, relative to gross weight, sir. I might further state that, so far as the certification of the aircraft is concerned, taking into account wind and temperature factors, the company could have operated this aircraft at 97,820 pounds. But, as I stated, the dispatcher-released maximum allowable was 97,275. In other words, the company itself had, for reasons we do not know at the moment, placed a lower restriction than the maximum allowable by the law.

Mr. DOLLINGER. Is it not true that the weight maximums are set for normal weather only, but notwithstanding that, the plane can legally take to the air even in bad weather on the same minimum requirements?

Mr. MATTHEWS. It is getting a bit into the matter of design criteria of power available, power loading and wing loading of a particular vehicle, but the design factors and the ability of the airplane to

perform takes into account all normal operating conditions, which does take into account those weather conditions which the airplane is capable of operating in.

Mr. DOLLINGER. Let me put the question to you this way, Mr. Matthews. The pilots interviewed stated that they do not like the arrangement because it does not provide for weather variables. They say ice and snow slow down the plane's takeoff speed and add weight and cripple the lifting power of the wings. They also stated that air intakes to the plane's four engines could have become clogged with ice and snow, encouraging formation of carburetor ice while the airliner was moving into position for its takeoff. They say snow or slush on the runway also act as a drag on the plane in its takeoff, slowing it to a certain extent. Would this indicate that under snow and ice conditions there is always a grave risk in takeoff and flying?

Mr. MATTHEWS. You use the term "grave risk." I would say no, sir.

Mr. DOLLINGER. Any kind of a risk, other than the ordinary risk assumed?

Mr. MATTHEWS. I would say nothing more than ordinary risk, sir.

Mr. DOLLINGER. Would there be a greater risk under such circumstances, with bad weather, snow and ice formations, to make your requirements a little different if not a whole lot different in different kinds of weather?

Mr. MATTHEWS. If at any time during the first start of a take-off run—a pilot has been deemed competent, he has been checked and tested and observed in the operation of the particular vehicle—at any time during the first part of his takeoff run that the aircraft is not accelerating properly, it does not suit him relative to its acceleration rate, if his power output and thrust indication and the feel that he has of the airplane is not right, the airplane can be brought to a safe stop within the limit of the runway, and the pilot has every authority to do that any time he feels the operation is not safe.

Mr. DOLLINGER. Is it not a fact, Mr. Matthews, that that very same afternoon, about 20 minutes after this disaster, another two-engine plane took off at LaGuardia, and had trouble? The pilot was able to get out of this difficulty. He stated later that it was the ice formation in the carburetor that caused his plane to drag, and he nearly had the same sort of mishap.

Mr. MATTHEWS. Such report appeared in the newspapers, and, naturally, during the investigation it will be followed out. I would like to point out that there were a considerable number of aircraft that took off within the 1 or even 2-hour period before and after this occurrence, and no such other reports have been received.

Mr. DOLLINGER. What other information have you on this near occurrence that I just spoke about?

Mr. MATTHEWS. Nothing more than what has appeared in the newspapers.

Mr. DOLLINGER. Would you say this statement is correct, which was given by veteran pilots, that the crash of the Northeast airliner which killed 20 people could be duplicated on any snowy day unless there are safeguards and changes that should be made in the regulations that will take care of situations such as this?

Mr. MATTHEWS. I would not care to make a comment on it, sir, because it covers entirely too many indefinite factors.

Mr. DOLLINGER. Would you say it is correct that airlines are loading their planes to such a degree that the lives of passengers are being endangered in bad weather without taking consideration of the factors I have mentioned with respect to loading capacity, the snow and ice and other formations?

Mr. MATTHEWS. Well, sir, generally in the field of whether or not the aircraft, this one or any other one, is safe for a particular type of operations, it is the responsibility of the Civil Aeronautics Administration. I would like to suggest that I am getting out of my field a bit, if this line of questioning continues, and that I pass it on to the people who are specialized in that field and whose responsibility it is.

Mr. DOLLINGER. Can you give me your opinion as to whether or not there was poor judgment on the part of the airlines to load this plane with 101 passengers that afternoon, considering all the elements involved?

Mr. MATTHEWS. Again, sir, I would not want to offer an opinion on the aircraft, as such, because the Civil Aeronautics Administration representatives can testify as to whether or not the aircraft has been certificated for that type of load.

The CHAIRMAN. Is it not the responsibility of the Board to investigate these matters and determine the facts regarding the questions raised by Mr. Dollinger?

Mr. MATTHEWS. We will determine it as a fact, sir, as to whether the airplane is certificated for the passenger load that is on board, and whether or not the airplane is certificated for the weight that was on it at the time. If these two factors are true, then those are the facts we have developed. Whether the certification was right or wrong, or whether it could be better or worse, is not our field, sir. That is the Administrator's.

The CHAIRMAN. I realize that. But it seems to me that you should be in a position to state as far as you know up to this time whether or not these things may or may not be true.

Mr. MATTHEWS. The Board itself makes the conclusions, Mr. Chairman, of the facts that we develop in an investigation. As I said, we will determine what the airplane was certificated for. It was certificated for 101 souls. There was a seat and a seat belt for that number of persons on board. It was certificated for higher gross weight than the airplane was loaded to at time of takeoff. We make those determinations, yes, sir.

The CHAIRMAN. Have you made those determinations?

Mr. MATTHEWS. Yes, sir. I have so stated.

The CHAIRMAN. Why could you not answer Mr. Dollinger's question?

Mr. MATTHEWS. He asked me for an opinion as to whether I thought it was safe.

The CHAIRMAN. You want to pass the answer on to somebody else. Why do you not tell him that that is the way it was certificated?

Mr. MATTHEWS. That is what I stated, sir, and if he wanted to know as to whether or not the airplane was properly certificated under that factor, in the area of how much weight a particular airplane would take off with, it would have to be answered by the Administrator.

The CHAIRMAN. I do not want to be interrupting the committee members, but I do want to make it clear we do not want any passing

of responsibility from one to another while we are facing each other around here. I think everybody should face up to the facts, as I tried to indicate this morning, and assume the responsibility here, even if it hurts somebody.

Mr. MATTHEWS. Mr. Chairman, I want to assure you that there is no attempt to pass the responsibility, but I want correct answers given to your body's questions and not something as to an opinion or guess by me in which I am not qualified, in that field of activity.

The CHAIRMAN. You may proceed.

Mr. DOLLINGER. Let me ask one further question, Mr. Matthews. You stated that the pilot had the right to decide whether or not, in his judgment, he should take this plane off. That is correct?

Mr. MATTHEWS. Yes, sir.

Mr. DOLLINGER. Is it true that the pilot might be unduly influenced by the airline to keep operating and to maintain the schedule to such an extent that pressure from the company may overcome the pilot's better judgment?

Mr. MATTHEWS. I have no knowledge as to anything of that effect, sir.

Mr. DOLLINGER. Let me ask you this: If you were the pilot that afternoon for Northeast Airlines, would you have taken that plane off under the conditions that existed at the time?

Mr. MATTHEWS. At the present time I do not know all of the facts that were available to Captain Marsh.

Mr. DOLLINGER. With the facts that you have in your control now?

Mr. MATTHEWS. With the facts that I have in my control now, I would have taken off; yes, sir.

Mr. DOLLINGER. Would you, also, if you were a passenger, have taken off as a passenger that afternoon?

Mr. MATTHEWS. I have ridden not only on flights like that, but worse flights.

Mr. DOLLINGER. I do not want to take any more time, Mr. Chairman. Some other members might wish to question.

Mr. MACK (presiding). The Chair would like to note the presence of two of our colleagues who just joined us, Congressman Bush and Congressman Latham of New York. We are very glad to have you here today while we are discussing this very important subject.

The Chair recognizes Mr. Derounian.

Mr. DEROUNIAN. Mr. Matthews, following up that one phase of Mr. Dollinger's questioning, where you replied that it is not up to CAA or its representatives to determine whether the weather is good enough to fly, would you say then that under existing regulations if the pilot of a loaded plane on the runway saw a tornado coming he could still take off if he thought he could make it, and you would have no control over it, if there was no traffic in the air?

Mr. MATTHEWS. As I understand it, again, sir, you have asked me a question that rightfully should be answered by the traffic-control people or the Administrator. As I understand it, if the pilot asks for takeoff instructions, the tower would not be able to physically stop him or order him to stop.

Mr. DEROUNIAN. If that is the case, and we will pursue this further with the other authority, certainly that has to be changed. Hypothetically speaking, suppose you had a moron as a pilot? Under

existing regulations he could take off in a tornado, with 101 people aboard, and no one could do anything about it.

Who, on the actual field, say at LaGuardia, does the checking on these weight limitations and the condition of the plane, et cetera?

Mr. MATTHEWS. The carrier itself determines those, sir.

Mr. DEROUNIAN. Do you have anyone checking the carrier? When I say "you," I mean the CAB or its agents or employees.

Mr. MATTHEWS. No, sir. If there was any checking done, it would be done by the CAA.

Mr. DEROUNIAN. Do you know whether the CAA has anyone at LaGuardia Field and whether anyone checked these various tolerances and weight loads?

Mr. MATTHEWS. On this particular airplane, sir, you would have to ask them. We have no information on it.

Mr. DEROUNIAN. Do you know whether or not Northeast has any more DC–6's than the one that crashed on this Miami-to-New York run?

Mr. MATTHEWS. It is my understanding they have one other, sir, at the current time, with others on order.

Mr. DEROUNIAN. Have you determined whether or not this plane, within a week or so prior, had had some mechanical failures on a flight to Miami and back? When I say mechanical failures, I mean not sufficient to crash the plane, but where they had had engine difficulties in the air or on the ground.

Mr. MATTHEWS. I do not have that information, sir. It is part of the maintenance group that is investigating all the records pertaining to the aircraft. It will be part of our investigation. That will be covered thoroughly.

Mr. DEROUNIAN. You stated that according to your records, the plane was on the runway for 20 to 30 minutes after it had been cleared once for takeoff.

Mr. MATTHEWS. That is the report that was given to us; yes, sir.

Mr. DEROUNIAN. Knowing the conditions of that day, would you say that in 20 to 30 minutes there could be sufficient ice formed on the wings so as to prevent full operation of an aircraft in flight, under those conditions?

Mr. MATTHEWS. That would depend on the actual temperature of not only the air but the precipitation falling and the temperature of the aircraft itself. That is a part of the investigation which will be thoroughly covered, sir.

Mr. DEROUNIAN. Mr. Matthews, haven't you determined yet whether or not the weather was bad enough to freeze a wing in 20 or 30 minutes or whether it would freeze a windshield? I happened to be driving that afternoon and evening, and I know my windshield froze within 5 minutes.

Mr. MATTHEWS. There were a number of aircraft, sir, operating under approximately that same condition that night and they had no difficulty whatsoever.

Mr. DEROUNIAN. I take rather a dim view of this seemingly "everything is all right" doctrine, because the airlines are the judges and the juries of whether a plane is going up. Very frankly, I think this whole question is going to have to be gone over thoroughly to protect people who may be at the whim of an airline, who has to pay its stock-

holders, who just got a new franchise to go down to Florida, who has borrowed equipment from another airline, and whose crack pilot has been suspended on violations. It just does not seem to be too salutary a picture for me.

May I state this: I do not believe that just the big boys ought to be the ones to run an airline, but certainly we must insure that the people, if they are going to continue to have the confidence in the airlines, ought to be protected from slipshod management. I am sorry to have to say this, but from what you have answered, sir, and the questions that Mr. Dollinger put to you, these people were apparently getting the last 2-cents worth out of the payload. When it deals with human beings, it is just not worth it, even if it means that the stockholders will not get an early dividend.

Mr. MACDONALD. Will the gentleman yield at that point?

Mr. DEROUNIAN. Yes.

Mr. MACDONALD. Is it not a fact that Northeast has been in operation for a number of years? Do you know how many years they have been in operation?

Mr. MATTHEWS. I am sorry, sir, I cannot give you that information.

Mr. MACDONALD. It has been 10 at least, has it not?

Mr. MATTHEWS. It may be more. It may be 15.

Mr. MACDONALD. Do you know whether this is the first fatality that Northeast has had in their operations?

Mr. MATTHEWS. I could not answer that.

Mr. MACDONALD. As a matter of fact, I believe the record will show that Northeast has proven itself over a period of 15 years as a very reputable airline, and this is the first fatality they have ever had in the operation of that airline.

Mr. DEROUNIAN. Be that as it may, nevertheless this whole situation has to be gotten into. As the chairman reminded us this morning, we must hit hard if there is something to hit hard at.

Do you know anything about the passenger list on that flight?

Mr. MATTHEWS. We have not gotten a passenger list as yet here. There is one in New York, sir.

Mr. DEROUNIAN. How long did it take your people to acquire that list?

Mr. MATTHEWS. I could not answer that, sir. I did not ask the specific question nor did our investigator in charge. I know he has a passenger list.

Mr. DEROUNIAN. Are you acquainted with the various figures that were released as to the number of people in the plane, at times subsequent to the accident? At one time there were 88 on board, then 91, then 96, and now 101. What I want to know is why should all of this confusion reign when it just takes a matter of a piece of paper and a pencil to jot down who is on the plane so that the ones who are interested back home can find out whether their folks are on the plane or not. It should not take a whole day and a half to find out who was on the plane. That is what I was referring to when I was speaking of seemingly slipshod management. I would hope that all these things would be gone into by your department, sir, so that we here on the committee, and we in Congress, can take appropriate measures to insure within reasonable probability that something like this does not happen again.

That is all I have, Mr. Chairman.

Mr. MACK. The Chair recognizes the gentleman from Massachusetts if he so desires.

Mr. MACDONALD. Thank you, Mr. Chairman.

I would like to clear up the business of slipshod management which our colleague from New York attributed to Northeast Airlines. I think that in fairness it should be pointed out that Northeast Airlines has been in operation for over 24 years, and this is the first fatality that they have ever had. Certainly the accident is a very serious matter and one that should be gone into. I have a special interest because I had five constituents aboard the plane, and even more personally, I fly the route from Washington to Boston just about every weekend. The thing that does, I think, need some clearing up is the fact of whether or not one man can decide whether the weather is flyable or not.

I came in a little late, for which I apologize, but is it not a fact, as I gathered from the questions, that if every airline flying a particular route would close down operations, a single pilot could say, "Well, now, I can fly that. I will take off." Is that true under your regulations?

Mr. MATTHEWS. The airline requirements might, within their limitations, cause them to cease operation, whereas the particular individual pilot might be able to go ahead and operate. He, in turn, might be illegal in doing so. I do not know the conditions that you want to set up. But the scheduled carriers maintain a set rule of operations relative to weather minimums and weather conditions. They are, in some respects, more rigid than the average private flier or the other types of operations would be limited to.

As far as the weather itself is concerned, you have the United States Weather Bureau, you have the dispatch system of the air carrier, and in some instances the air carriers themselves have their own weather bureaus for advice relative to weather.

Mr. MACDONALD. In your opinion, if this is within your jurisdiction, do you think it would be salutary to have a man or a group of men that could get together all the information necessary and decide whether or not planes should take off on any given route?

Mr. MATTHEWS. I would rather, since that is an operational question—again, I am not trying to hedge or dodge—place it in the operational field, and that is with the Administrator, or with Mr. Bakke, who has charge of drawing the regulations under which people operate. It depends on which field you want to direct questions to, sir.

Mr. MACDONALD. Do I understand that this piece of equipment that crashed was a leased piece of equipment, that it did not actually belong to Northeast?

Mr. MATTHEWS. That is our understanding.

Mr. MACDONALD. It was leased from the Flying Tiger outfit?

Mr. MATTHEWS. That is our understanding; yes, sir.

Mr. MACDONALD. Do you know when the last check had been run on the engines?

Mr. MATTHEWS. At this time; no, sir. That is part of the active investigation of the engines and propellers at the present time.

Mr. MACDONALD. What is your regulation concerning checkups and withdrawal of equipment?

Mr. MATTHEWS. They vary, sir, depending upon various carriers.

Mr. MACDONALD. When you say carriers, you do not mean the airlines, do you?

Mr. MATTHEWS. I mean scheduled carriers. The check periods are stated in their operating manuals, and so far as any one carrier is concerned, I would not want to trust memory. I would have to refer to the actual operating manual and maintenance manual itself.

Mr. MACDONALD. Could you give an approximation as to what would be the usual check time on a piece of equipment such as this?

Mr. MATTHEWS. Well, there are several systems that can be used, one of them being the continual maintenance system, under which various sections of the engine are checked at intervals varying from 25 to 100 hours and then revolving until the engine finally gets to overhaul period.

Mr. MACDONALD. When is the overhaul period?

Mr. MATTHEWS. An overhaul period, again, varies, depending upon the time limit set by the Administrator for that particular operator.

Mr. MACDONALD. I do not quite understand how there would be a different criteria for different operators.

Mr. MATTHEWS. It depends on their experience. Again, I think the question should be directed to the Administrator, sir, since they make the determination. It depends on their experience with those engines, and the particular engines themselves, the type of engine.

Mr. MACDONALD. I may be wrong, but are not most of these engines built by one or two companies?

Mr. MATTHEWS. In the heavier craft, yes, sir.

Mr. MACDONALD. Why would there be a different criteria used for whichever airline happened to own this engine that was turned out by the same manufacturer?

Mr. MATTHEWS. Many of them are identical, sir. I did not mean to say that they are all different. Many of them are identical on hours, but there are some differences. In other words, you, sir, might elect, and be perfectly in order from your own experience and what you could prove relative to the airworthiness of your product, to overhaul you engine at 1,000 hours. I might elect to do the same thing at 750 hours for reasons of my own, purely management-wise and operational.

Mr. MACDONALD. Do not you think the controlling interest here is not management-interest but the public interest?

Mr. MATTHEWS. If it has been determined that 1,000 hours is safe for X type of engine, you can go to 1,000 hours, sir if you meet certain requirements relative to your establishment, your overhaul procedures, your overhaul equipment, personnel, and so forth. There is nothing that says that I cannot have it overhauled, however, at 750 hours, if I have a different system.

Mr. MACDONALD. Basically, I hope you understand that I am talking about minimums now. Do you not feel that there should be a minimum, a standard, that would force all airlines to overhaul at a given period of operation?

Mr. MATTHEWS. There is, sir. There is a maximum for any of them.

Mr. MACDONALD. What is that for this type of craft?

Mr. MATTHEWS. That, sir, the CAA will have to answer for you. I cannot answer unless I had the Northeast Airline manual in front of me.

Mr. MACDONALD. You said, in answer to a question of Mr. Derounian, that there had been other planes taking off just prior to the accident and just after, with no icing problem.

Mr. MATTHEWS. Apparently none reported to us.

Mr. MACDONALD. Would they normally report it to you if they did have this trouble?

Mr. MATTHEWS. Under circumstances of this kind, I think they would, sir. But in normal operation, they would not report some slight difficulty. If it caused them to lose an engine, there is a requirement that they have to report it.

Mr. MACDONALD. Do you feel, without going further in your investigation, that there must have been some sort of failure within the deicing equipment of that airplane, if ice was the problem?

Mr. MATTHEWS. You say if it was the problem. It could be, sir. I would not want to say that we had reached that assumption at this stage of the investigation. It is too early.

Mr. MACDONALD. Just one last question. I think it ought to be cleared up, in fairness to the pilot. He had an accident off that same runway earlier, did he not, when he put the plane down in the East River?

Mr. MATTHEWS. I have forgotten whether it was runway 4. It was LaGuardia field.

Mr. MACDONALD. You say he was suspended?

Mr. MATTHEWS. Yes.

Mr. MACDONALD. Is that normal, to suspend a pilot during an investigation?

Mr. MATTHEWS. The suspension of pilots' certificates is something that is the responsibility of the Administrator again, sir. The Board does not get into it, except when the Administrator draws a complaint before the Board.

The CHAIRMAN. I think that is all right, Mr. MacDonald. We will get to that later with the Administrator.

Mr. MACDONALD. Has your investigation indicated to what extent the pilot showed great heroism once he was on the ground in freeing a number of passengers personally, himself?

Mr. MATTHEWS. Not to an extent that I can speak to, sir. I know the story is there. It will come out in time, both in his written statement and in his testimony later.

Mr. MACDONALD. Thank you very much.

The CHAIRMAN. Mr. Bakke, would you come forward and take a seat? There are some of these questions, I think, which get into policy matters which Mr. Matthews, as an investigator, may want to defer to you, if you do not mind. I think we ought to keep the record clear if we can.

## STATEMENT OF OSCAR BAKKE, DIRECTOR, BUREAU OF SAFETY REGULATION, CIVIL AERONAUTICS BOARD—Resumed

The CHAIRMAN. Mr. Hale.

Mr. HALE. Mr. Chairman, I want to say, first, that I was over in the Republican conference, and I am sorry that I did not hear the first part of Mr. Matthews' testimony.

There is no question of "loyalty" on the part of anybody in New England, but the fact is that Northeast has served the New England

area for over 20 years, and their safety record is an excellent record. That is just a matter of fact.

As I understand you testimony, the cause of this accident has not yet been determined; is that correct? Is that the gist of your testimony?

Mr. MATTHEWS. Yes, sir. We are still actively investigating every phase of the occurrence, determining all facts, conditions, and circumstances surrounding this, and we will run every one of them out to its ultimate end.

Mr. HALE. And the accident is peculiar in that the pilot survived; did he not?

Mr. MATTHEWS. I would not like to use "peculiar," sir. We are very fortunate.

Mr. HALE. I mean peculiar in the sense that almost always in these cases the operating crew is dead.

Mr. MATTHEWS. Unfortunately, that happens too many times, that they do die in these occurrences.

Mr. HALE. Did all the operating crew survive in this case?

Mr. MATTHEWS. That is my understanding; yes, sir. The pilot, the copilot, and the flight engineer are all alive and able to give statements and have good recollection relative to their actions.

Mr. HALE. That is all, Mr. Chairman.

The CHAIRMAN. Mr. Mack.

Mr. MACK. I do not have any questions.

The CHAIRMAN. Mr. Wolverton.

Mr. WOLVERTON. Did I understand you to say that this plane was due to leave earlier in the afternoon than it actually attempted to leave?

Mr. MATTHEWS. That is correct; yes, sir.

Mr. WOLVERTON. What was its scheduled time for leaving?

Mr. MATTHEWS. At 2:45. That is my understanding of the scheduled departure time.

Mr. WOLVERTON. What time did it take off?

Mr. MATTHEWS. At 6:01.

Mr. WOLVERTON. Who kept it from taking off on schedule at the time?

Mr. MATTHEWS. The pilot, sir.

Mr. WOLVERTON. Did anyone else have the right to exercise judgment or discretion as to whether the plane should take off or not at the scheduled time?

Mr. MATTHEWS. I would like to have Mr. Bakke answer that, sir. It gets into a regulatory problem.

Mr. BAKKE. The answer to that, sir, is, very definitely, "Yes." The regulations prescribe a duality of control for the purpose of flight planning and the initial operation of an aircraft. The authority is vested in both the pilot and the dispatcher. Both these airmen are certificated in accordance with the Civil Aeronautics Act. They are professional people who understand fully the consequences of the weather situation, the characteristics of the aircraft, the shape and size of the airport, and so on. Either the pilot or the dispatcher may cancel a flight initially. By definition, the pilot is given full authority over the aircraft during that period of time which the regulation defines as flight time. If, with the approval of the dispatcher, the aircraft has actually left the blocks, as it is called, and is moving under its own force toward the runway for the purpose of taking off,

the pilot is then in command of the aircraft, and has sole responsibility for taking action. The dispatcher, as of that moment, acts in advisory capacity only.

There is one further qualification that I should make. The dispatcher does have authority to initiate an instruction to the pilot to terminate the flight at any time, even after he has left the blocks. The pilot, however, is given emergency authority to countermand that instruction. This authority may be exercised, however, only in the case of an emergency, and the pilot under these circumstances is required to give a written account of the reasons for taking action contrary to the advice of the dispatcher. He is held fully accountable for such action.

Mr. WOLVERTON. Is the dispatcher in the employ of the Civil Aeronautics Administration?

Mr. BAKKE. No, sir. He is certificated by the Civil Aeronautics Administration.

Mr. WOLVERTON. In whose employ is he?

Mr. BAKKE. He is in the employ of the air carrier.

Mr. WOLVERTON. What was the name of the pilot?

Mr. MATTHEWS. Captain Marsh, sir, Alva B. V. Marsh.

Mr. WOLVERTON. How old is he?

Mr. MATTHEWS. I do not have his age, sir. I believe it is about 50; either 50 or 51.

Mr. WOLVERTON. What experience has he had as a flier?

Mr. MATTHEWS. It is reported to be over 20,000 hours.

Mr. WOLVERTON. Did he have military training as well as civilian?

Mr. MATTHEWS. It is my understanding he did, sir. He operated in Military Air Transport during the war.

Mr. WOLVERTON. How many accidents has he had during this period of being a pilot?

Mr. MATTHEWS. We have a record of two, sir, in civilian operation.

Mr. WOLVERTON. One, I understood, resulted in his suspension.

Mr. MATTHEWS. That is correct.

Mr. WOLVERTON. What was the nature of that?

Mr. MATTHEWS. That was the accident in a Convair aircraft in which the aircraft struck the water short of the runway during an approach to LaGuardia Field, while he, Captain Marsh, was acting as check pilot, checking out a man to be upgraded as captain. Captain Marsh at that time was sitting in the right seat and the man he was checking was sitting in the left seat, doing the acual flying of the aircraft at the time.

Mr. WOLVERTON. Were both of them suspended?

Mr. MATTHEWS. Yes. sir.

Mr. WOLVERTON. I will go back to the inquiry I initiated when Mr. Bakke took over. As I understand it now, the plane was scheduled to take off at 2:45.

Mr. MATTHEWS. That is my understanding, sir.

Mr. WOLVERTON. How soon after 2:45 did the pilot decide not to take off?

Mr. MATTHEWS. The pilot decided not to take off prior to 2:45, sir, shortly after he arrived at the airplane, approximately 2:25, when he saw that the aircraft was in need of having snow removed.

Mr. WOLVERTON. Was there nobody other than an official of Northeast Airlines to make that determination, or was it left entirely to the discretion of the pilot?

Mr. MATTHEW. The actual operating procedure for Northeast at LaGuardia, sir, I do not have knowledge of myself at the present time. I would say that the captain reporting to his airplane, and this we do know, did not like the condition of snow on the airplane, of which he was going to take command, and requested ground personnel of Northeast, or as they could obtain—we do not know whether they have it by contract or otherwise, at this time—to remove the snow. Efforts were made to do that out on the ramp while it continued to snow.

Mr. WOLVERTON. I think you missed the point of my question. I would like to know whether there is anyone in an instance such as this who would have the right to stop that plane from taking off because of the conditions which you have related, other than the pilot himself.

Mr. MATTHEWS. As Mr. Bakke stated, if the flight dispatcher had knowledge of it, he could have kept the airplane from moving away from the ramp.

Mr. WOLVERTON. Both the pilot and the dispatcher are in the employ of the Northeast Airlines?

Mr. MATTHEWS. Yes. sir.

Mr. WOLVERTON. I would like to know, and that is the point of my question, whether there was any Government official who had the authority or the power to stop a plane taking off under conditions which this pilot determined would not be wise to take it off under.

Mr. BAKKE. Mr. Chairman, I wonder if I might be permitted to answer that question?

Mr. WOLVERTON. If you will pardon just a moment, so you can give us the fullest answer possible, what I am trying to drive at is this: To what extent does our Government protect individuals on a flight such as this from being taken on that flight if and when the conditions would cause them to determine it is unsafe? We understand that the control-tower officer determines when a plane can take off, and that is based upon the conditions existing at the time, the presence of other planes in the vicinity and so forth. When he gives his O. K. for it to take off, he has passed on it, and he is a Government official. I would like to know whether the Federal Government has any right or power, or does it exercise any, to determine whether the engines are in good working condition before the plane takes off, whether the weather conditions, such as you have related, make it unsafe to take off, or is it left entirely to the discretion of the pilot or the dispatcher, both of whom are in the employ of the airline whose ship is about to take off?

Mr. BAKKE. I believe that question requires, sir, in order to be a complete answer, a somewhat lengthy one. I shall attempt to give as complete an answer as I am able.

Directly, the answer is that under normal circumstances, there is no governmental employee of any sort, Federal or otherwise, who typically inspects the aircraft or otherwise determines that it is in an airworthy condition immediately prior to departure.

I would like to qualify that in a few respects. You asked whether there was anyone who had the authority to do so. There is. The Administrator has the authority to take emergency action with respect

to the airworthiness certificate of the aircraft, the pilot's certificate, the airman's certificate of the pilot, in order to prevent the operation which he considers to be unsafe.

The act confers this authority upon the Administrator. This would require some rather unusual knowledge on the part of the Administrator or his agents. He would have to have knowledge of the fact that an unairworthy condition does exist. There have been instances in which agents of the Administrator have been notified in such conditions and have taken action to prevent flights under these circumstances. This, however, although the authority does exist, is an unusual situation, and it is not one which you might expect to occur on any typical takeoff of air-carrier aircraft.

I would like to add, however, that one cannot dismiss lightly the fact that airmen, even though they might be in the employ of the air carrier, are certificated by the Federal Government. The fact of certification is a very potent tool, with which the Federal Government works. One cannot dismiss the fact that the livelihood of the pilot in command and the dispatcher is held in balance by the authority of the Federal Government to suspend or revoke this certificate. There is no pilot who works for a living, nor is there any dispatcher employed as a dispatcher who regards lightly the threat of revocation or suspension of his certificate.

The fact that a possible violation may exist in any particular instance, we consider so important a consideration in the mind of the pilot that we are satisfied that he would not undertake an act which is dangerous, which is careless or reckless, or which is contrary to the civil air regulations, lightly. We consider this a very potent force.

With respect to the physical capability of the Federal Government providing agents to inspect aircraft prior to each departure, such a requirement on the part of the Federal Government would, in my judgment, require a staff in the employ of the Administrator in excess of the total technical personnel of the air-carrier industry today. Admittedly this is just a guess, but I would venture to say that the Administrator would be required to match man for man the technical manpower of the industry to provide such a service.

Mr. MACDONALD. Will the gentleman yield?

Mr. WOLVERTON. For a question.

Mr. MACDONALD. For a question which I addressed to Mr. Matthews, and he said that Mr. Bakke was in a better position to answer it than he was.

Aside from the fact of physical inspection, do you think it would be a good idea to have one person or a group of people at an airport in control of whether or not any given air route should be flown? In other words, to stop confusion among passengers, in a situation where, for example, American Airlines are flying to Boston at 11 o'clock, and National is not, even though weather conditions obviously apply to both? That is to take it away from the pilot who has a certain interest that an impartial person might not have?

Mr. BAKKE. The answer I would give, of course, is one of personal judgment. My judgment is that it would not be desirable to attempt such an arrangement. It would not be desirable because of the tremendous manpower requirement which would result. It would mean something perhaps not quite so extensive as my observation in con-

nection with the previous question, but it would require a very, very large technical staff, something far larger than the staff which exists today for such a purpose.

Furthermore, I think that the Congress would wish to think very carefully, as I am sure would the Board, before undertaking to lift this responsibility from the operator upon whom, in my judgment, it belongs, and take onto itself the responsibility for making the day-to-day operating decision of an air carrier. Not only do many, in my opinion, frightening legal consequences present themselves here, but I think, as a matter of morality, I have a great deal of difficulty with this.

Mr. MACDONALD. Morality?

Mr. BAKKE. Yes, sir; yes, sir; I do. I do not think that the man who operates that airplane should be prevented from having the responsibility. I think that he must be asked to come to grips with this responsibility. There is one other view that I would like, however, to urge that you consider. That is that in many important respects the objective which I consider your question to seek, or at least seek to consider, is met, in large part, under the regulations now, by establishing the limits of the discretion of the air carrier.

I might add that there is no country in the world that has so comprehensive a set of regulations as the United States, and our air carrier regulations are filled with restrictions that define the limits. Sometimes these definitions are in rather general terms. They are so far as icing is concerned. But the regulation draws the line in many important respects, and says that the air carrier shall not step over the line.

With respect to icing, for instance, it says very clearly, although the standard is a general one—

> No air carrier shall operate an aircraft under any conditions when there is ice accretion on the wings or other parts of the airplane which might jeopardize safety.

Admittedly, there is no quantitative value. We cannot set up a value of so many millimeters of snow or ice, for instance, because the effect, aerodynamically, of snow or ice or frost on wings is an extremely variable thing. But the regulation does in fact draw the limits of discretion of the air carrier with respect to this.

Mr. WOLVERTON. Mr. Bakke, let us get back to what we are really interested in. I do not like to make the statement I am about to make, but it seems to me that your discussions get into the realm of unreasonableness, as you give these reasons why there should not be some additional safety provisions provided. How many dispatchers are there at LaGuardia at the present time?

Mr. BAKKE. I would not know what the total number is, sir.

Mr. WOLVERTON. Does each company have its own dispatcher?

Mr. BAKKE. Yes, by all means. Each company is required to have its own dispatcher. They may not be located at LaGuardia.

Mr. WOLVERTON. I assumed from what you said that they were, because they would be a check, or at least an auxiliary to the pilot on determining whether a plane should take off or not. But we will assume, as you say, that maybe there is not a dispatcher. In that case, then, the pilot assumes the entire responsibility as to whether the conditions are such that it would be safe for the plane to make the flight. Is that right?

Mr. BAKKE. No, sir; it is not. To the extent that such a decision can be made on the basis of reported informaton, typically the weather reports and forecasts issued by the United States Weather Bureau, the dispatcher is always required to concur in a flight plan made by a pilot. That concurrence is usually provided over some communication system, a teletype system or by land lines of other sorts.

Mr. WOLVERTON. Then the dispatcher is not always present at the scene, is he?

Mr. BAKKE. He is typically not present at the location of the aircraft.

Mr. WOLVERTON. That only accentuates the thought that I have in my mind. Who pays the dispatcher? He is an agent of the airline. I assume the airline pays his salary; is that right?

Mr. BAKKE. They do, sir.

Mr. WOLVERTON. What objection would there be if the dispatcher was a Government official, and his salary was paid for by the airline? You have spoken of the tremendous strain that would be on the Federal Government. Every one of these companies employs dispatchers. They carry that load. So it would not be any additional burden on them, would it, if the Government official, as a dispatcher, was there the same as the control tower agent is in the tower?

Mr. BAKKE. Sir, when I commented earlier about the manpower burden which would fall on the Federal Government, it was in reply to a question that had to do with the inspection of aircraft, as to whether a given airplane was safe for use. A dispatcher does not make such a determination. He typically does not. In direct answer to your question as to whether there would be any undue effect, untoward effect, where the dispatcher is paid by the Federal Government, I would say technically no. I cannot see any technical reason.

Mr. WOLVERTON. We will not take too much time discussing that. If I bring out the facts, you may have your opinion and I may have mine.

Mr. MACDONALD. Would the gentleman yield to clear up the record?

Mr. WOLVERTON. Yes.

Mr. MACDONALD. The question I asked Mr. Bakke had nothing to do with the inspection of aircraft. The question I asked was whether or not one person or group of persons should determine under a set of conditions whether or not an air route should be flown.

Your answer was that it would put such a burden on the Federal Government that you did not think it was advisable, and you added something about the morality of that.

Mr. BAKKE. Sir, I wonder if I might clarify that point? The question was put to me twice. Once, as I recall, it was put by Mr. Wolverton and once yourself. The first question that was asked me, as I recall, by Mr. Wolverton, had to do with the inspection of aircraft. That, I indicated, would put a great burden numerically, and that was I believe where I said my opinion the burden might be so large, for instance, as to require the Federal Government to match man for man the technical personnel of the air carrier.

Mr. WOLVERTON. Have you finished answering?

Mr. BAKKE. No, sir; I had not.

Mr. WOLVERTON. Go ahead.

Mr. BAKKE. Mr. Macdonald, you then followed, sir, as I recall, with the question of whether we might have personnel who would deter-

mine whether given operations over given routes would be necessary. I answered that question by saying that the manpower requirement would not be so great as if the Government, for instance, were required to inspect all aircraft prior to departure, but it nevertheless would impose a very substantial burden.

In my reply to the third question that was asked, I was referring to my reply to the first one, when I spoke of inspection of aircraft. I merely wanted the record to be clear on the fact that the dispatcher typically does not inspect the condition of an aircraft prior to departure.

Mr. WOLVERTON. Then in this instance, he did not have anything to do with the plane taking off, did he? The pilot had the whole say?

Mr. BAKKE. So far as the inspection of the aircraft, the snow that was on the aircraft, and the determination as to whether the airplane was safe for takeoff, the responsibility would typically fall on the pilot alone.

Mr. WOLVERTON. That is what I thought it was when we started, but you brought the dispatcher in in such a way that it made me think that you were also placing some responsibility on him.

The CHAIRMAN. Would the gentleman yield for just a moment?

I would like to be as lenient as we can be, but I hope we can avoid continuous repetition here, because there are other people that we want to ask questions, and we have consumed quite a bit of time here.

I am not talking about you, Mr. Wolverton, but about the responses of the witnesses.

Mr. WOLVERTON. I can put in a very few words what my thought is, and what I would like to follow through. It does not result alone from this accident that we are making an inquiry with respect to, but because of other situations that had previously arisen, which have come to my attention, and which have left an impression with me. I might say that what you have said in answer to my questions this afternoon accentuates that opinion, that there is not sufficient Federal supervision over passenger-carrying airplanes. I remember in one instance—and this will illustrate what I am driving at and what I would like to put on the record as my feeling in the matter—where the plane failed to take off properly. The question was raised as to whether it had the proper gasoline. I know I raised the question in that instance "Who determined what kind of gasoline was in the tank of that airplane?" So far as I could learn at that time there was no one that passed on that, other than the company itself, taking the responsibility of having a gasoline that would comply with whatever the requirements are.

Who passes on this airplane, which I understood from a previous witness came in from Miami that afternoon, or that morning, and was turning around to go back again? Was there any Government inspection of that plane during that time to determine whether it was airworthy for takeoff, whether the engines were good, whether they were faulty in any respect?

Did anyone pass on that? Is there anyone that passes on those questions? I have wanted to feel when I get into a plane, and I have done a lot of flying, that somebody with power, other than the individual who had the profit to gain from the running of the plane, had passed on the airworthiness of the craft from a technical standpoint,

and decided whether it was safe in every way, shape, condition and form.

As I gather from your answers, a great many of those questions are left entirely to the direction of the company or its agents or officials without Government supervision. To me it seems that there ought to be a strengthening of these controls, or these supervision features. For instance, a previous witness testified as to the time that should elapse, safely elapse, before there would be an examination of the engine. I gathered from what he said anything under 1,000 hours would be considered safe.

Mr. MATTHEWS. That was only on overhaul, sir, not inspection. It would be inspected, various portions of it, at periods of 25-hour segments to 100 hours, and then a repetition of that same until the engine had run its life for overhaul purposes.

Mr. WOLVERTON. Was there anybody at LaGuardia Field before this plane took off who knew when the last overhauling had been of the engines?

Mr. MATTHEWS. The records available with the airplane and with the company would tell the people within the company who are responsible for that function that the airplane does not go beyond its proper inspection or overhaul period as to whether or not the airplane required an inspection or overhaul at any particular time.

Mr. WOLVERTON. Was there any Government official at LaGuardia on that afternoon whose duty it was to examine or make inquiry as to when there had been an overhaul of engines?

Mr. MATTHEWS. We have no knowledge as to that, sir. The question, if I may be permitted to say so, should be directed to the Administrator, as that is their responsibility and not the Board's.

Mr. WOLVERTON. He is not before us, so I can only address my questions to you at the moment. Is there any other Government official there that takes any hand whatsoever in determining any feature of the safety and worthiness of a plane before it takes off?

Mr. MATTHEWS. If it is not an employee of the Civil Aeronautics Administration, sir, I do not believe that there would be one.

Mr. BAKKE. Mr. Chairman, I wonder if I may be permitted also to answer that question? Each scheduled air carrier has assigned to that air carrier as his primary responsibility various agents of the CAA. Northeast Air Lines had certain agents in the employ of the Civil Aeronautics Administrator whose sole duty it is to monitor and to otherwise maintain familiarity with, to supervise in the sense of insuring compliance with the Civil Air Regulationss, this air carrier. I do not know that he is located at New York, but there is such a supervision by Government personnel. However, these agents are typically located at the operating headquarters of the air carrier, or, if the air carrier divides itself into several divisions, the operating headquarters of each such division.

The responsibility for checking such things as maintenance records, to insure that the continuous maintenance system of the air carrier, in fact, is carried out, is the responsibility of the CAA agent in charge of maintenance for the air carrier. That agent is not required to, nor do the CAA agents typically make such checks for every takeoff on every day at every airport. There is Federal Government supervision. It does not go to the extent of your question, sir.

Mr. WOLVERTON. When was the last check on this particular plane?

Mr. BAKKE. Sir, I am not familiar with the details of the accident itself, and I do not know that we have the answer to that question.

Mr. MATTHEWS. We do not have that specific action. Are you referring, by CAA or by the company, sir?

Mr. WOLVERTON. Is there a particular kind of gasoline that is needed to raise a load such as that had that is required by rules and regulations of the Civil Aeronautics Administration?

Mr. BAKKE. Each engine, sir, requires a gasoline which meets certain specifications peculiar to that engine. Yes, sir, there is a particular type of gasoline which is required for use in this engine.

Mr. WOLVERTON. Do you know whether that type was used on this occasion?

Mr. MATTHEWS. At the present time, no, sir. It will be determined in our investigation.

Mr. WOLVERTON. Was the plane certificated for a certain number of passengers?

Mr. MATTHEWS. Yes, sir.

Mr. WOLVERTON. How many?

Mr. MATTHEWS. I do not know the total number of this particular plane, but it was certificated for the 101 souls that were on board. The exact number of seats in this particular plane I do not have at hand now, sir.

Mr. WOLVERTON. I am not intimating that there were more than 101 on the plane; but, merely to carry out the thought I had about inspection: Was there any Government official there to determine how many were in that plane, whether it was certificated to carry 88, and there were 101, or that there was any other number within the regulation that they were permitted to carry?

Mr. MATTHEWS. Following the accident, sir, it was determined that every person that was on board the aircraft had a seat and a seat belt as required by regulations and as required by the certificate issued by the Administrator.

Mr. WOLVERTON. What I am coming to is this: That may be true, that everybody had a seat and everybody had a belt, but what I was trying to get at is: Was there anyone to make sure of that fact before the plane takes off, or is that left to the discretion of the pilot, the agent of Northeast Airlines, or anyone else?

Mr. MATTHEWS. Typically, the CAA would not have a man out there at the airport for this particular flight, necessarily. Whether there was or not, we do not know. The company, generally, is responsible to see that they do not overload their aircraft, either by weight or by number of persons.

Mr. WOLVERTON. Mr. Chairman, I will not pursue this line of questioning. I think I have gone into it sufficiently to demonstrate the thought that I have in my mind, namely, that there should be a closer inspection, examination, or control, whatever you wish to call it, on the part of the Federal Government before planes take off, instead of leaving these questions to the judgment, in most instances, as I take it, of one individual, the pilot of that aircraft.

I can understand that after the plane is in the air there is a responsibility upon the pilot that cannot be distributed. But before it takes off, it seems to me, we are lax in the amount of inspection that is con-

ducted by some Federal agency to make sure that the safety elements are present.

The CHAIRMAN. Mr. Roberts.

Mr. ROBERTS. No questions, Mr. Chairman.

The CHAIRMAN. Mr. Bennett.

Mr. BENNETT. Who makes the determination as to the time when a plane has outlived its usefulness and ought to be junked or taken out of service?

Mr. BAKKE. There is no Federal requirement which goes precisely to that question. I would say that the answer is that the operator determines that, generally. I should say that there are requirements which place a time limit on the number of hours, for instance, that an aircraft or an aircraft component may be operated. However, that limitation merely requires that the aircraft or its components as of that time be overhauled. If it is properly overhauled in accordance with the Government's maintenance requirements, it may then be operated indefinitely.

Mr. BENNETT. The point I was making is that we all know eventually a machine wears out. We also know that not only the engines, but the structural parts, the framework of the airplane deteriorate, for one reason or another, just from age and use alone.

Mr. HALE. Metallic fatigue.

Mr. BENNETT. And metallic fatigue, as my colleague says. You say that the question of when a plane is taken out of certificated passenger service is left solely to the discretion of the air carrier itself.

Mr. BAKKE. The ultimate decision; yes, sir. However, again I must qualify it this way, by saying that the inspection requirements for, say a major airframe overhaul is such that the effects of fatigue, for instance, must be determined, and appropriate repairs or alterations made in order to prevent any adverse effect on the airworthiness of the aircraft resulting from fatigue. If those conditions are met, then that aircraft or component may be operated indefinitely.

Mr. BENNETT. As far as the CAA or CAB is concerned.

Mr. BAKKE. Yes, sir.

Mr. BENNETT. So that other than the right to inspect and the right to require overhaul to see that the engines are performing properly, the CAB or the CAA have no authority to say, "This plane should be taken out of service"?

Mr. BAKKE. Yes, sir, we do have that authority.

Mr. BENNETT. You do have it?

Mr. BAKKE. Yes, sir, we do. The Administrator has the authority to inspect any airplane at any time. If he finds that aircraft to be unairworthy, he may suspend the airworthiness certificate for cause, for an emergency. If it is to be a permanent thing, suspension requires, of course, a proceeding before the Board.

Mr. BENNETT. You mean that the airline has the final say, even though the CAB makes a determination that the machine is worn out and should be taken out of service? I do not clearly follow that.

Mr. BAKKE. The Administrator has the authority to inspect a given airplane.

Mr. BENNETT. I understand that.

Mr. BAKKE. If he finds that it is unairworthy, he will ground the airplane. But he is then required to state the conditions under which

the airplane's airworthiness certificate may again be issued. If the air carrier meets those conditions, he may continue to operate.

Mr. BENNETT. The point I am trying to make is that in between the time that the airplane is constructed and the time it is worn out, it may become unairworthy. I have often gotten on airplanes, and I think everybody else has, that rattle like an old flivver. The newer planes ride more smoothly. I wonder who decides finally when this plane is worn out, when it should be taken out of service. That is essentially what I am trying to get at. I think it is important.

Mr. BAKKE. That decision is made by the operator.

Mr. BENNETT. By the air carrier?

Mr. BAKKE. Yes; by the operator of the aircraft.

Mr. BENNETT. In determining the maximum weight that goes into a plane, what factors are taken into consideration?

Mr. BAKKE. In the initial certification of the aircraft the manufacturer is required to subject the aircraft to certain tests, and to submit data indicating that the structure of the aircraft and its performance are within certain tolerances. I might give as an illustration, for instance, this point:

No aircraft is permitted to be operated at any weight in excess of that at which the aircraft may be able to meet certain climb requirements. These are known as performance limitations. As an example of one, for a four-engine airplane, certificated under part 4 (b) of the Civil Air Regulations, it must have an ability to accelerate to what is known as the critical engine failure speed, and at that point on the runway to lose power completely from one of its engines and either stop within the limits of the runway or continue the takeoff, climbing beyond the end of the runway to a height of 50 feet. Whatever weight the airplane can demonstrate that that requirement can be complied with is one of the maximum weights. We repeat that process dozens of times. We do the same thing for what is known as the second segment climb takeoff, where the carrier must meet a rate of climb which is equivalent—Well, the number happens to be .035 times the square of the stall speed. But there is a rule which says he must be able to climb at a certain rate. The resulting weight is limiting. This process continues. There are many flight regimes and for each there is a weight which may govern with respect to any given takeoff.

Mr. BENNETT. The weight in this case was 97,000 pounds?

Mr. BAKKE. I understand this was a weight which was limited by the runway length at this airport.

Mr. BENNETT. Does that include the weight of the passengers as well as the cargo?

Mr. BAKKE. This is the gross weight, the total weight of the aircraft, its own structure and everything aboard.

Mr. BENNETT. What cargo or what factors went into determining the weight of 96,000 pounds? Is that passenger weight as well?

Mr. BAKKE. It is everything, sir. It is every ounce of weight that is in that airplane.

Mr. BENNETT. How do you determine the weight of the passengers if you do not weight them when they get on the plane?

Mr. BAKKE. The carrier, under the Civil Air Regulations, is left with an option of two systems. He may weight everything that goes into the airplane, including the passengers, and he may use that total

weight. There are some operations when an air carrier is required to do that. In certain contract operations where they are carrying people of greater than usual weight, such as military personnel, or a football team, or something of that sort, he may be required to use the actual weights of the passengers. Otherwise, the air carrier is permitted to use a system of weight control approved by the administrator. What that means is that the carrier demonstrates, statistically, that if he assumes all male passengers to weigh 165 pounds and all female passengers to weigh 140 pounds, or all passengers to weight a certain given weight, if he can demonstrate statistically to the Administrator that a standard passenger weight is a weight which, if used by the air carrier, will insure at all times that the passenger weight does not exceed the actual passenger weight, the Administrator may approve the use of such a system. If the carrier uses such a system, there will be no requirement to weigh all passengers.

Mr. BENNETT. That is quite a complicated formula, is it not?

Mr. BAKKE. Yes, sir; but the air carriers have concluded that the weighing of every passenger has its own complications as well, and they accept this method.

Mr. BENNETT. What I am getting at is this: When you reach a point where the weight is so near to the maximum capacity of the plane, as you were in this particular case, then some rule of thumb in determining passenger weight might not be the proper thing. In other words, you might have had passengers on that plane whose gross weight might very well have exceeded the gross maximum of the plane. Would that not be true?

Mr. BAKKE. That is theoretically possible, sir. There have been conducted some very extensive surveys of the realism of the systems of weight control approved by the Administrator. We are persuaded that the systems currently in use will, by and large, prevent this type of thing.

In this case, for instance, we will know before the investigation is over what was in fact the total weight of the passengers. We do this typically: Relate the actual weight of the passengers to the weights which result from the application of the standard weight-control system.

Mr. BENNETT. Wouldn't it be in the interest of safety to require a lesser gross weight in taking off under adverse conditions such as where this plane had its accident? Everybody agrees there is a difference in the degree of danger in taking off on a dry runway in clear weather as against taking off under icy, snowy, freezing conditions, and that the gross weight of the plane is an important factor; is that true?

Mr. BAKKE. Yes, sir; the weight is a very important factor.

Mr. BENNETT. Then do you not think that the Board might give consideration to a regulation that might require a carrier to reduce the load under situations as existed in this case, in the interest of safety?

Mr. BAKKE. Just as indicative of Board policy, I might——

Mr. BENNETT. I do not know that the weight had anything to do with this accident. But we all know it is possible to overload a ship, and if you do it in bad weather, you are adding to an already present danger. Is that not a fair statement?

Mr. BAKKE. Yes, sir. What I was going to mention was the fact that in the performance limitations there are certain atmospheric conditions which are required to be taken account of.

For instance, in assessing the power produced by an engine, the engine manufacturer is required to take account of the probable moisture content of the air, regardless of whether that moisture exists or does not exist. In the case of temperature, for instance, the higher the temperature, the more performance of the aircraft suffers.

Mr. BENNETT. But he could still load his plane to its maximum weight, regardless of weather; is that true?

Mr. BAKKE. The point I am trying to make is that the higher the temperature the more the weight is required to come out of the airplane. The colder the temperature, the more performance that can be gotten out of an airplane. Performance of an airplane improves with cold weather. Balanced against that, of course, we have the adverse effect of snow. But this is typical of the computation in governing aircraft weight. There are always balancing factors. As one condition affects adversely airplane performance, another condition serves to improve it. We have not, so far as snow, for instance, ever been able to determine some rational basis upon which to lower the weight of the aircraft on the basis of given snow accretions. We just do not know how to measure it.

It is for that reason that we deal, I might say, arbitrarily with it. We state in the rules "any time there is snow accretion which might affect adversely the safety of this airplane, you have to remove the snow before taking off."

Mr. BENNETT. That, again, is at the discretion of the pilot. I believe that will be all for the moment.

The CHAIRMAN. Mr. Rogers.

Mr. ROGERS. Speaking of weight being a more or less determining factor in the performance of aircraft, I had an experience not long ago where I went up to the counter and I was about 10 pounds overweight in my luggage. I weigh about 165 pounds, but the man in front of me weighed about 225 pounds and he had a briefcase. They charged me several dollars for that few pounds overweight that I had to carry on the plane. I was wondering if that didn't have more effect on the performance of the plane. I know that is not within your jurisdiction, Mr. Bakke. I do, however, want to ask this question: There has been some confuson, and I think it would help matters if you could very briefly, please, outline the investigative area of the agency that you represent.

Mr. BAKKE. The Civil Aeronautics Board is charged under title 7 of the Civil Aeronautics Act with the investigation of accidents. In an accident such as this, for instance, the Board is charged with the responsibility of determining all of the facts, conditions, and circumstances surrounding the accident, with a view toward determining the probable cause of that accident, and with a view toward making such recommendations and taking such action as will prevent the recurrence of that accident.

Mr. ROGERS. That was the thing that I had in mind. As I recall, you gave that same testimony out at Las Vegas in the hearings concerning the Grand Canyon accident.

Mr. BAKKE. Yes, sir.

Mr. ROGERS. I was a little alarmed at Mr. Matthews' reply so many times to the members' questions that it was a matter for the Administrator to answer and not for the Civil Aeronautics Board or your Division of the Civil Aeronautics Board. It was my impression that you were to make a complete and thorough examination of these matters and try to reach some conclusion concerning the cause of them.

Mr. BAKKE. Sir, there is no question of that, and I am certain——

Mr. ROGERS. Excuse me. In this, Mr. Bakke, it is within the confines of your jurisdiction to make recommendations to the Civil Aeronautics Administration concerning your findings; is it not?

Mr. BAKKE. Clearly, sir.

Mr. ROGERS.. Let me ask you this question about that: Have you made any such recommendations with relation to your investigation of the Grand Canyon accident?

The CHAIRMAN. Mr. Rogers, this morning when we started, prior to your arrival, I announced that that report was coming up right away. The Chairman of the Board called me and told me that another witness to the accident had been found and they wanted to get his statement.

Mr. ROGERS. Thank you very much, sir.

I am sorry, I was not here when that statement was made.

You have reached some conclusions, have you not?

Mr. BAKKE. Yes, sir; we have.

Mr. ROGERS. I will not go into them, because I imagine they will be in the report. You have reached some conclusions.

Now, have you reached any conclusions, so far, Mr. Bakke, in relation to the findings so far in this accident in New York.

Mr. BAKKE. No, sir; we have not.

Mr. ROGERS. Have you reached any conclusions insofar as the occurrence in California?

Mr. BAKKE. Yes, sir; we have with respect to the necessity for further clarification of Government policy, that is, the policy of the Federal Government, with respect to the performance of flight testing, and this, as I described this morning, was the subject of an amendment to part 60 of the Civil Aeronautics Regulations, which the Board adopted yesterday.

Mr. ROGERS. February 6? That is the release that we have here?

Mr. BAKKE. I believe it is dated February 5, sir. Perhaps the press release is dated February 6. They have been made available to the committee.

Mr. ROGERS. And that action is the direct result of findings made by you in this affair that took place in California between the jet-propelled aircraft and the DC–7B?

Mr. BAKKE. Yes, sir.

Mr. ROGERS. But there have been no findings so far upon which you could predicate any action, nor are you in a position to testify as to what your conclusions might be with relation to the New York crash?

Mr. BAKKE. That is correct, sir.

Mr. ROGERS. I believe that is all I have right now, Mr. Chairman. I have a lot more, but I will withhold them for the time being.

The CHAIRMAN. I might say on these matters of policy, regulations, authority and so forth, we are going to have the Administrator and the Board here a little later for a much broader study of general policy.

Mr. Carrigg.

Mr. CARRIGG. No questions.

The CHAIRMAN. Mr. Jarman.

Mr. JARMAN. Mr. Chairman, I have some questions but they have all been answered to my satisfaction.

The CHAIRMAN. Mr. Younger.

Mr. YOUNGER. How many takeoffs at LaGuardia Field occurred between 2:45 and 8:10? I think you have those figures.

Mr. MATTHEWS. I do not have it from 2:45, Mr. Younger. I am sorry.

Mr. YOUNGER. From what time do you have it?

Mr. MATTHEWS. Of times off, 4:05 is the first one we have. This particular record went back 2 hours.

Mr. YOUNGER. How many in the 2 hours prior to the 6:10 takeoff?

Mr. MATTHEWS. Seven, sir.

Mr. YOUNGER. How many companies are involved?

Mr. MATTHEWS. Seven, sir.

Mr. YOUNGER. Seven companies?

Mr. MATTHEWS. Yes, sir.

Mr. YOUNGER. Then you had the decision of 7 pilots and 7 dispatchers who approved those planes leaving the ground?

Mr. MATTHEWS. That is correct.

Mr. YOUNGER. In your opinion would there have been any different decision if a Government official had been there?

Mr. MATTHEWS. Operating under the same concept of safe operation, I do not believe that there would have been, sir.

Mr. YOUNGER. That is all.

The CHAIRMAN. Mr. O'Brien.

Mr. O'BRIEN. Mr. Chairman, I would like to clarify my thinking a little bit.

Your investigation to date, Mr. Matthews, has not established whether there was any fault on the part of the pilot or any mechanical defect of the plane, is that correct?

Mr. MATTHEWS. As such, no, sir. It is still under way. All aspects are being investigated. It would be premature at this time to attempt to draw any conclusions on one line or the other, until all evidence is in.

Mr. O'BRIEN. You did say earlier that under the circumstances as you knew them that if you had been the pilot, you would have taken off on that particular day?

Mr. MATTHEWS. As I know of the circumstances and the weather conditions at the time, and as an airline pilot, I would have proceeded. Again, anything of that nature needs to be qualified. I would proceed if my aircraft was operating properly and was safe.

Mr. O'BRIEN. I would like to pursue what Mr. Younger brought up for a moment, if I may. He brought up a very important point that 7 planes operated by 7 different companies did take off under those conditions or substantially those conditions. Has your investigation indicated whether any of those seven planes or any planes which took off during that period, were loaded as close to capacity as the plane which was involved in the accident?

Mr. MATTHEWS. I do not know, sir. The relationship to operation of these aircraft or similarity of it, in the study that no doubt will be brought out, if there is any similarity.

Mr. O'BRIEN. But they were substantially loaded as you understand it?

Mr. MATTHEWS. I think with the exception of two they were regularly scheduled operations.

Mr. O'BRIEN. Is there any record, or have you discovered any record so far of any pilot during that period refusing to take off a plane, or of any airline refusing to permit a pilot to take off a plane?

Mr. MATTHEWS. I know of none, although there may have been some cancellations, sir.

Mr. O'BRIEN. Then if there was any bad judgment on the part of the pilot involved in the wrecked plane, that bad judgment was demonstrated by the pilots of the other planes which took off on that particular afternoon?

Mr. MATTHEWS. If you want to classify it as bad judgment, I would say the same degree of judgment was exercised by all of them.

Mr. O'BRIEN. I didn't classify it as bad judgment. I said if there was.

Mr. MATTHEWS. If there was, yes.

Mr. O'BRIEN. Thank you very much.

The CHAIRMAN. Mr. Avery.

Mr. AVERY. Mr. Chairman, my questions are very brief and mostly a matter of definition.

Reference was made this morning, Mr. Bakke, to the term high density area. As I understand it, that would apply to a heavy traffic flow in an area and wouldn't pertain to what was on the ground below it; is that true?

Mr. MATTHEWS. That is correct, sir.

Mr. AVERY. One further point: We refer to these carriers as commercial carriers. That would distinguished them between private carriers, such as a common carrier on the ground and a private carrier?

Mr. MATTHEWS. Yes, sir; that is correct. We distinguish between carriers and private aircraft operators.

Mr. AVERY. Getting back to the fixing of responsibility, if I was a private flyer, such as a pilot flying for a corporation, and we could get traffic clearance all right, then it would be solely the responsibility of the pilot if he wanted to take off, regardless of all other conditions?

Mr. BAKKE. Not quite regardless of all other conditions. There are operating limitations which are spelled out, even for private pilots, in part 43 of the Civil Air Regulations, and the private pilot as well as every other pilot is obligated to comply with the air-traffic rules. The extent of the operating limitations of part 43, however, is much less than that of part 40, which contains the scheduled air carrier rules. There is not nearly the amount or extent of limitations imposed upon him. He has far greater discretion. We can put it that way.

Mr. AVERY. Who would be the same as the dispatcher, for a private air carrier? Who would apply these?

Mr. BAKKE. No one. For the scheduled air carrier who carries passengers, we require another man's judgment to be shared in the planning and decision to take that flight.

Mr. AVERY. That clears up the point.

I would like to interject this for the benefit of the committee. There has been quite a little discussion here about where the responsibility should be placed, Mr. Chairman, with the Government or with the

carriers. I just want to remind the committee, and I have done some flying as a pilot, not very extensively and I wasn't very good—that is why I quit flying—but the pilot is betting his life and his judgment. I think that should be kept in focus here, as compared to a Government employee who is going to be safely on the ground, who is going to go off duty after he has worked 8 hours and somebody else takes over the dispatcher duties. His responsibility has ended. I think we must keep in focus that the pilot's life is being bet on his judgment as well as the lives of his passengers.

That is all, Mr. Chairman.

The CHAIRMAN. It is an interesting comment, and I think a very appropriate observation. Also it could be followed with the question as to the responsibility of the pilot with respect to the maintenance of equipment and readying equipment to take off.

Mr. BAKKE. Would you care to have me comment on that, sir?

The CHAIRMAN. Yes, if you wish to. I think that is a proper observation, following the comment just made by our colleague, Mr. Avery.

Mr. BAKKE. When the airplane is delivered to the operations department of an air carrier, it is delivered with the certification of the maintenance department that this airplane is airworthy.

The certification is required to be made by a man who also possesses a certificate, a license, issued by the Administrator. In this case it is known as the aircraft and engines license. The maintenance man who certified that this airplane is airworthy also lays his livelihood on the block every time he makes such a certification, when he runs the risk that the Administrator in making a spotcheck of those records and that airplane finds something that indicates gross negligence and deficiency. He turns that airplane over to the pilot. The pilot is then required to check through the airplane. He is required to use what is known as a checklist, which is a rather simplified check, recheck, of the airplane's airworthiness. He checks to see that the controls move free and easy. He runs up the engines, and he checks the magnetos, he checks for the sound of the engines, he checks to see that the aircraft lights are functioning properly, and all the instrument indications are proper.

He makes that kind of a check. There is a fairly comprehensive check. It is as extensive a check as can reasonably be accomplished from the cockpit of an aircraft. He is required to perform that check prior to departure.

Mr. MACK (presiding) Mr. Moss?

Mr. MOSS. I have just two questions.

You indicated that the check periods for maintenance purposes were up to the airlines, and generally governed by a maintenance manual?

Mr. BAKKE. Yes, sir. The air carrier is required to have a continuous maintennace program. The maintenance procedures of the air carrier are required to be satisfactory to the Administrator. The maintenance or the operation specifications of an air carrier, according to part 40, are issued by the Administrator. The Administrator actually tells the air carrier under part 40 what the maintenance specifications are that are applicable to that air carrier.

These specifications include, among other things, the time between overhaul, time between inspections. They include specifications as

to what the nature of the inspection shall be, specifically what the air carrier's maintenance people are required to inspect. It is this combination, the length of time between inspection and the magnitude of the inspection which may produce variations between air carriers. Some air carriers may inspect just a little bit, and would, therefore, be required to inspect frequently. Other air carriers may inspect more and would be required to inspect less frequently. There is some slight variation. However, throughout a complete cycle of inspection, all of the required inspections are with respect to every air carrier required to be conducted.

Mr. Moss. But for the same planes, they differ between airlines or owners or operators of aircraft?

Mr. BAKKE. Yes. Any given inspection may differ, somewhat, you might say, from the comparable inspection for another air carrier.

Mr. Moss. As I understand it, the plane in question was a leased plane. Which set of maintenance instructions or procedures would govern, those of the owner or the lessee?

Mr. BAKKE. Part 40 of the Civil Air Regulations makes it very clear that no air carrier can pass his responsibility for the maintenance of aircraft on to anyone else. The air carrier operating the airplane is at all times fully responsible for the maintenance of the aircraft. He is responsible that there shall have been kept adequate records insuring that maintenance. The air carrier is required to have physical evidence in his file that all of the required maintenance actions were completed satisfactorily. Those files are subject to the scrutiny of the maintenance agents of the Administrator and they are, in fact, reviewed regularly, spot checked, in order to determine whether these maintenance specifications and other pertinent maintenance regulations are complied with.

Mr. Moss. Much has been said of the discretion vested in the pilot in finally determining whether he shall take the plane off the ground. Is that discretion granted the pilot by CAA regulation, or is it just a recognized policy, an unwritten policy?

Mr. BAKKE. Sir, that is a question that can draw a yes-and-no answer, I am afraid. It is covered expressly in the regulation in the definition of the authority of the pilot in command. The pilot in command is charged with full and final responsibility for the safety of the aircraft, its crew and other occupants during that period of time known as flight time. Flight time begins when he moves away from the blocks, when starting a flight, and ends when he stops the airplane at the blocks at the end of the flight.

Mr. Moss. Is there any limitation on the exercise of that discretion because of company policies?

Mr. BAKKE. Yes, sir.

Mr. Moss. And instructions to the pilots as to how they will exercise that discretion?

Mr. BAKKE. Yes, sir. I would say there is.

Mr. Moss. Then on any question where it might be assumed that there was some bad judgment shown by a pilot, it would be necessary also to take into consideration any instructions which limited him in exercising that discretion?

Mr. BAKKE. Clearly, sir. Every time there is an exercise of apparent bad judgment on the part of a pilot, our investigation always attempts to determine what underlay that exercise of bad judgment, what pressures or motivations existed. I might say that there have been regulations adopted as a result of that kind of an investigation.

Mr. Moss. Are the policies of the carriers in this area published? Are they in a manual that can be referred to? Or are they given verbally, in lectures to the pilots?

Mr. BAKKE. The air carrier is required by regulation to maintain an air-carrier manual for the instruction of all its flight and ground personnel. The pertinent regulation specifies in great detail what the contents of such a manual should be, and it places the responsibility on the air carrier to insure that that manual is complete and is up to date. The air carrier is required to transmit a copy of that manual and all amendments to the manual, to all personnel for whom the manual is intended, and, as well, to the Administrator in the number of copies required by the Administrator. This manual is available for scrutiny by the agents of the Administrator assigned to the air carrier. This is a part of the normal supervision which the Federal Government exercises over the air carrier. Still——

Mr. Moss. Thank you.

The CHAIRMAN. Mr. Alger.

Mr. ALGER. Have you determined in your investigations thus far what the temperature was on the ground and in the air, aloft, as to what icing conditions might have been? This is quite easily determined.

Mr. MATTHEWS. We have the temperature on the ground, sir, at the quickest reading following the accident, which I read off before.

Mr. ALGER. I did not get that. What was the temperature on the ground?

Mr. MATTHEWS. At 6:06—I am sorry, we don't have it here. It is recorded at the New York Weather Bureau.

Mr. ALGER. I did not catch it earlier today. That is why I asked.

Mr. MATTHEWS. The last one of actual temperature was 31 at 1728.

Mr. ALGER. Was it warmer or colder aloft?

Mr. MATTHEWS. That, sir we do not have here. It is on record with the Weather Bureau in New York.

Mr. ALGER. That possibly could explain the lack of icing on planes coming in.

Mr. MATTHEWS. It could be that it was colder and would satisfy that statement.

Mr. ALGER. Have you examined any pieces of the wreckage yet, and this would have to be determined immediately, to see if a fragment of wing or tail or any other part of the air foil had ice on it after impact?

Mr. MATTHEWS. By the time investigating crews got there, sir, the report was made to me that due to the heat generated by the fire that there was and could have been no evidence of any ice, if there had been ice on any of the structure.

Mr. ALGER. This plane skidded 500 to 600 feet, which could easily have dropped off pieces not affected by the heat.

Mr. MATTHEWS. And there was about 2 feet of snow, too. They did not even see some of the marks until after the snow melted.

Mr. ALGER. There were no pieces found?

Mr. MATTHEWS. Later, sir; but none with ice on them.

Mr. ALGER. Do you know from an examination of the wreckage whether the gear was retracted fully?

Mr. MATTHEWS. The gear was retracted in the wreckage.

Mr. ALGER. Anyone knows if you are reducing power as the testimony has shown, and you are taking your gear up and your flaps up, but your gear does not retract, you may not be flying any more. You are quite certain of the gear being retracted?

Mr. MATTHEWS. The gear was found to be in the retracted position.

Mr. ALGER. Speaking of the pilot's jurisdiction, I want to ask this question: This same crew had brought the plane in from Miami?

Mr. MATTHEWS. Yes, sir.

Mr. ALGER. And the crew, therefore, had not reported any reasons to suspect the plane was not airworthy; is that correct?

Mr. MATTHEWS. That is correct; and they so stated, also.

Mr. ALGER. I think that is important for this committee to know, that pilots must report what they find in any aircraft. This is the same crew that flew it in.

Mr. MATTHEWS. I stated that the crew had reported no discrepancies or malfunctions on the northbound flight.

Mr. ALGER. I would like to conclude with this thought, Mr. Chairman, that it is my hope that in our determination and zeal to get to the bottom of this, that we certainly do not fail to appreciate the wisdom of the existing rules and regulations which are based on highly technological information which many of us, I feel certain, are not abreast of.

Mr. YOUNGER. May I just add one other question?

The CHAIRMAN. Mr. Younger.

Mr. YOUNGER. In regard to the number of flights that occurred after 6:10, how many were there?

Mr. MATTHEWS. Is that for takeoff only, sir?

Mr. YOUNGER. Yes.

Mr. MATTHEWS. Again, this is restricted only to the 2-hour period. There was one other, sir, at 6:22.

Mr. YOUNGER. 6:22 p. m.?

Mr. MATTHEWS. Yes.

Mr. YOUNGER. Had they closed the field then?

Mr. MATTHEWS. No, sir. There were many arrivals after that. The last one I have recorded is 8:04.

Mr. YOUNGER. There must have been a lot of cancellations then during that time, because at LaGuardia you have a lot of planes normally scheduled to leave during that period.

Mr. MATTHEWS. They may have been delayed, sir, and went out later. That I do not have a record of.

Mr. YOUNGER. Could you supply to the committee the number of scheduled flights from 2:45 up until 6:01; from 6:01 up until an hour later that were canceled?

Mr. MATTHEWS From 2:45 p. m. through——

Mr. YOUNGER. Up to 6:01 p. m. and from 6:01 p. m. to an hour later.

Mr. MATTHEWS. That were canceled?

Mr. YOUNGER. That is right, if any.

Mr. MATTHEWS. We will obtain the information, sir.

Mr. YOUNGER. And the names of the companies.

Mr. AVERY. In that respect, we also ought to have the point of destination, because that would enter very materially on flight cancellations, as to what kind of weather they were heading into.

Mr. BAKKE. Mr. Chairman.

The CHAIRMAN. Mr. Bakke.

Mr. MATTHEWS. Mr. Younger, to satisfy several questions, would it be satisfactory, if they were canceled, to furnish the reason for cancellation?

Mr. YOUNGER. Yes.

Mr. MATTHEWS. That would give it whether mechanical or any other reason.

Mr. YOUNGER. That is right.

Mr. MATTHEWS. There are many things that can affect the needs of cancellation of a flight, even to the extent of scheduling of aircraft, where they simply do not have enough.

Mr. YOUNGER. That will be sufficient. But I think it is important to have that in the record.

(The information requested was later supplied as follows:)

CIVIL AERONAUTICS BOARD,
*Washington, March 28, 1957.*

Hon. OREN HARRIS,
*Chairman, Interstate and Foreign Commerce Committee, House of Representatives, Washington, D. C.*

DEAR MR. CHAIRMAN: On February 8, 1957, during my appearance before your committee in connection with the Rikers Island accident, the Board was requested to furnish information concerning scheduled flights canceled at LaGuardia between 2:45 and 7:01 p. m. on February 1, the day of the accident (transcript, p. 323).

This information has been compiled and is enclosed. It is only a listing and all pertinent information regarding possible connections between this accident and weather conditions will be developed in the public hearing which will be opened in New York City by the Board's inquiry panel on April 2, 1957. No inference, of course, is to be drawn by the Board from the enclosed information prior to the full exploration in the public hearing.

Sincerely yours,

JAMES R. DURFEE, *Chairman.*

*Canceled air carrier flights scheduled to depart LaGuardia Airport between 1445 e. s. t. and 1901 e. s. t., Feb. 1, 1957*

| Air carrier | Flight | Scheduled departure | Time canceled | Canceled by— | Stated reason canceled | Remarks |
|---|---|---|---|---|---|---|
| American Airlines | 510 | 1335 | 1537 | Downey (dispatcher) | De-icing conditions | Departed ramp at 1358, returned ramp at 1458 account ground interruption/weather. |
| Do | 536 | 1410 | 1713 | do | do | Departed ramp at 1625, returned to ramp at 1716 account ground interruption/weather. |
| Do | 781 | 1455 | 1825 | Houck (dispatcher) | Weather and snow | Departed ramp at 1638, returned to ramp at 1819 account ground interruption/weather. |
| Eastern Air Lines | 865 | 1455 | 1650 | Friesmuth (dispatcher) | | 3 hours late out of Boston due to delay on turn equipment. Cleared over LGA to avoid adding to already complicated ground handling problems. |
| Capital Airlines | 34 | 1500 | 1320 | Jeskey (dispatcher) | Weather | |
| American Airlines | 173 | 1510 | 1845 | Stillwell (dispatcher) | Weather and icing | Departed ramp at 1800, returned to ramp at 1900 account ground interruption/weather. |
| Do | 647 | 1510 | 1917 | Bozza (dispatcher) | Low ceilings | Departed ramp at 1820, returned to ramp at 1850 account ground interruption/weather. |
| Do | 721 | 1545 | 1825 | Houck (dispatcher) | Weather and snow | Departed ramp at 1750, returned to ramp at 1848 account ground interruption/weather. |
| Do | 163 | 1600 | 1845 | Stillwell (dispatcher) | Weather and icing | |
| Eastern Air Lines | 63 | 1610 | 1850 | Friesmuth (dispatcher) | Weather and accumulated delay and uncertainty of continued delay. | Original delay due to late arrival of turn equipment. Further delay due to ground handling conditions. |
| American Airlines | 618 | 1615 | 1838 | Bozza (dispatcher) | Weather | |
| Capital Airlines | 137 | 1615 | 1455 | Dugan (operations control) | do | |
| Eastern Air Lines | 24 | 1620 | 1935 | Jones (dispatcher); Friesmuth (dispatcher). | Weather and accumulated delay plus uncertainty of continued delay. | Flight took long delay inbound. Further delayed due to ground handling conditions. |
| American Airlines | 761 | 1630 | 1735 | Houck (dispatcher) | Low ceilings | |
| Eastern Air Lines | 523 | 1635 | 1910 | Avery (dispatcher) | Weather and equipment and accumulated delay plus uncertainty of continued delay. | Original delay due to late arrival of turn equipment. Further delay due to ground handling conditions. |
| Do | 12 | 1635 | 1915 | Jones (dispatcher) | Weather and accumulated delay plus uncertainty of continued delay. | Do. |
| Do | 6460 | 1635 | 1905 | Friesmuth (dispatcher) | do | Flight delayed awaiting takeoff clearance and returned to ramp. Further delayed due to ground handling conditions. |
| Capital Airlines | 375 | 1635 | 1625 | Coons (operations control) | Ship distribution | |
| American Airlines | 747 | 1635 | 1735 | Houck (dispatcher) | Low ceilings | |
| Do | 219 | 1700 | 1917 | Bozza (dispatcher) | do | |
| Do | 119 | 1700 | 1846 | Stillwell (dispatcher) | Weather and icing | |
| Do | 367 | 1730 | 1703 | Houck (dispatcher) | Low ceilings and snow | |
| Do | 797 | 1730 | 1703 | do | do | |
| Do | 2367 | 1735 | 1720 | Bozza (dispatcher) | Weather | |
| Do | 177 | 1740 | 1646 | Stillwell (dispatcher) | do | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Do | 314 | 1740 | 1513 | Downey (dispatcher) | Low ceilings | |
| Do | 520 | 1745 | 1512 | do | do | |
| Eastern Air Lines | 48 | 1745 | 1920 | Jones (dispatcher); Friesmuth (dispatcher). | Weather and accumulated delay plus uncertainty of continued delay. | Original delay due to late arrival turn equipment. Further delay due ground handling conditions. |
| Capital Airlines | 41 | 1750 | 1510 | Dugan (operations control) | Ship distribution | |
| Eastern Air Lines | 577 | 1755 | 1925 | Friesmuth (dispatcher) | Weather and accumulated delay plus uncertainty of continued delay. | Flight delayed awaiting takeoff clearance and returned to ramp. Further delayed due to ground handling conditions. |
| American Airlines | 149 | 1755 | 1845 | Stillwell (dispatcher) | Weather and icing | |
| Do | 295 | 1800 | 1659 | Bozza (dispatcher) | Weather | |
| Eastern Airlines | 895 | 1800 | 1720 | Avery (dispatcher) | Weather and equipment | Normal turn equipment overflew LGA and landed Bos. |
| American Airlines | 752 | 1815 | 1604 | Downey (dispatcher) | Low ceilings and de-icing conditions. | |
| Capital Airlines | 77 | 1815 | 1830 | Coons (operations control) | Weather | |
| Eastern Airlines | 539 | 1825 | 1945 | Friesmuth (dispatcher) | Weather and equipment | Normal turn equipment was canceled at DCA due to expected delays and ground handling conditions at LGA. |
| United Air Lines | 631 | 1830 | 1511 | Operating base, Denver | Equipment shortage | |
| American Airlines | 739 | 1830 | 1733 | Houck (dispatcher) | Low ceilings and snow. | |
| Do | 403 | 1840 | 1539 | Barnes (dispatcher) | Low ceilings | |
| Do | 416 | 1845 | 1603 | Downey (dispatcher) | Weather and icing conditions | |
| Do | 175 | 1845 | 1646 | Stillwell (dispatcher) | Weather | |
| Capital Airlines | 53 | 1855 | 1450 | Dugan (operations control) | Ship distribution | |
| American Airlines | 227 | 1900 | 1725 | Bozza (dispatcher) | Weather | |
| Do | 507 | 1900 | 1539 | Barnes (dispatcher) | Low ceilings | |

Mr. BAKKE. Mr. Chairman, may I be permitted one statement in clarification of an observation made earlier?

The CHAIRMAN. Yes.

Mr. BAKKE. In commenting upon the question of suspension and revocation of certificates, I believe Mr. Matthews might have left the impression that the Board does not have a role to play. The Board definitely does. Under the act, the Board is charged with making the suspension and revocation after notice and hearing. The Administrator, as the enforcement agency, brings the complaint before the Board and the Board then determines whether suspension or revocation shall be imposed.

The Administrator does have emergency suspension authority. That, however, is circumscribed in time, and action must be taken by the Board in due course for any permanent action.

The CHAIRMAN. I had a great many questions in mind myself, Mr. Bakke, but I think they can be taken care of a little later, with this exception: It is the Board's authority and responsibility to certificate a carrier for a given route; is that right?

Mr. BAKKE. So far as the certificate of convenience and necessity is concerned; yes, sir.

The CHAIRMAN. To serve a given route?

Mr. BAKKE. Yes, sir.

The CHAIRMAN. No one else has any authority to, do they?

Mr. BAKKE. I only wanted to distinguish between what is known as an air-carrier operating certificate, which is issued by the Administrator, and a certificate of convenience and necessity, which is issued by the Board.

The CHAIRMAN. I am talking about the certificate of public convenience and necessity for a particular route, as in this instance New York to Miami.

Mr. BAKKE. Yes, sir.

The CHAIRMAN. That is the Board's responsibility?

Mr. BAKKE. Yes, sir.

The CHAIRMAN. Does the Board take into consideration the ability of the carrier to perform a service on a given route? That may be out of your field. You may prefer to wait until the Chairman of the Board appears.

Mr. BAKKE. I would strongly suggest that, sir. I take no part whatever in any of the proceedings which are incidental to certification.

The CHAIRMAN. On Friday morning we will meet again on this subject. I have some pertinent questions that I want to ask the appropriate people.

Mr. Pyle, the Administrator, will be here. I hope there will be some one from the Board who can speak authoritatively on these questions of the certification of routes and some of the policies behind them.

Let me thank you, both of you, for your appearance here today. We have consumed a whole day. I thought we would get to both the Board and the Administration during the day but you can see that we have not been able to. I do think it has been a very fine hearing. I do think that the matter has been presented in a way that the general public can understand the problem better.

The committee will adjourn until 10 o'clock in the morning, at which time we will have the Oil and Gas Division of the Department of the Interior.

(Whereupon, at 5:21 p. m. the committee recessed, to reconvene at 10 a. m. Thursday, February 7, 1957.)

# AIR SAFETY

FRIDAY, FEBRUARY 8, 1957

HOUSE OF REPRESENTATIVES,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
*Washington, D. C.*

The committee met at 10 a. m., in room 1334, New House Office Building, Hon. Oren Harris, chairman, presiding.

The CHAIRMAN. The committee will come to order.

Before we start the hearing this morning, I understand that we have a very distinguished group with us who are visiting Washington and would like to see the committee in action, and I would like to recognize our colleague, Mr. Alger, to present this group to us.

Mr. ALGER. Thank you, Mr. Chairman.

It is really a pleasure for me, and one probably I do not deserve, because these folks are not from my district. They are from all over the United States.

You might say a word or two, Mr. Chairman, as to why more members are not here, so that they will understand that part of it. But, I can tell you that Mr. Clyde Taylor is secretary of public affairs of the National Association of Evangelicals and the group he represents here is composed of educators of the seminar on Federal service.

Now, here is a group from all over America who are trying to understand something about the Government, Mr. Chairman, and I am delighted to have this opportunity to present them to you and commend them to you.

Mr. Pyle is to testify here today, Mr. Taylor, and he has invited your group to inspect the CAA facilities. I will leave that with you in case something can be worked out.

The CHAIRMAN. I also would like to join in extending a cordial welcome to this distinguished and outstanding group here in Washington on this important mission.

In order that we may have a better look at you as a group, I might ask you to just stand. Thank you.

That is very fine. Thank you very much.

We are exceedingly glad you have chosen our committee to observe this morning.

We hope that you will get a little better understanding of the processes of your Government, and especially the Congress, in its work through committees. You will find, as you observe here, that it is in and through committees that a large part of the work of Congress is accomplished. That is necessary. It is utterly impossible to work out all of the technicalities of many of these problems in open session on the floor of the House.

For your information we have under consideration today a continuation of the study of airspace-use problems, especially the tragic acci-

dent that occurred in California last Thursday—yesterday a week ago—and the Northeast Airlines tragedy in New York on Friday of last week.

Day before yesterday we heard two representatives of the Civil Aeronautics Board describe these two tragedies and explain the operations of the Board and the Civil Aeronautics Administration.

Today we have a continuation of this important problem.

Mr. Pyle, who is the Administrator of the Civil Aeronautics Administration will be the first witness. Mr. Durfee, who is Chairman of the Civil Aeronautics Board is with us for the purpose of answering questions that were raised in the previous session, although I fully realize perhaps he hopes that Mr. Pyle will be able to answer most of those questions in his discussion. But, Mr. Durfee, we do want to note for the record that you are present with us today.

**STATEMENT OF JAMES T. PYLE, ACTING ADMINISTRATOR, CIVIL AERONAUTICS ADMINISTRATION, WASHINGTON, D. C., ACCOMPANIED BY ROBERT P. BOYLE, GENERAL COUNSEL; WILLIAM B. DAVIS, DIRECTOR, OFFICE OF FLIGHT OPERATIONS AND MAINTENANCE, CIVIL AERONAUTICS ADMINISTRATION; ROBERT E. DAKE, CHIEF, GENERAL SAFETY DIVISION, CIVIL AERONAUTICS ADMINISTRATION, REGION IV, LOS ANGELES, CALIF.; SAMUEL D. HALEY, AVIATION SAFETY AGENT, AIR CARRIER DIVISION, CIVIL AERONAUTICS ADMINISTRATION, BOSTON, MASS.; EVERETT W. KEELER, AVIATION SAFETY AGENT, CIVIL AERONAUTICS ADMINISTRATION; AND DAVID D. THOMAS, DIRECTOR, OFFICE OF AIR TRAFFIC CONTROL, CIVIL AERONAUTICS ADMINISTRATION, WASHINGTON, D. C.**

The CHAIRMAN. Mr. Pyle, we are sorry to have inconvenienced you on Wednesday—if we did. We realize that it was an important day for you before the Senate committee.

We are very glad that you have had an encouraging visit with that august group over there. We are glad to have you before us today.

As I understand you have a prepared statement which you will present, these 2 days having given you an opportunity to prepare answers to many of the questions that were brought up on Wednesday.

You have with you one of your associates. I think for the record you might identify him and anyone that you may have with you that you would want to refer to.

Mr. PYLE. Shall I proceed.

The CHAIRMAN. You may proceed.

Mr. PYLE. Mr. Chairman, in answer to your question, or request, on my right is Mr. William B. Davis, who is Director of the Office of Flight Operations and Maintenance Division. I wanted to have him here in the event of some of the more technical aspects of the question might be better answered by him.

Mr. David D. Thomas, he is Director of our Office of Traffic Control and can answer any questions in connection with traffic control.

Mr. R. P. Boyle, General Counsel, CAA, is also available for questioning or answering questions.

I would also like to say, before presenting my formal statement, Mr. Chairman and members of the committee, that I do appreciate your consideration with respect to my rather tight schedule on Wednesday and also the chance to appear this morning, inasmuch as my schedule this next week takes me out of town for 3 or 4 days.

With that, I would like to present our formal statement.

Mr. Chairman and members of the committee, I was present in the committee room Wednesday morning when you, Mr. Chairman, expressed your views on the responsibility of Government in the field of safety in air commerce. I consider your statement as one of the most constructive that I have heard in a long time, and I concur most heartily with the viewpoint that you expressed. It reflects rather precisely the policies and objectives which we ourselves have. In fact, it does so to the extent that, with your permission, I intend to duplicate your statement and send it to every one of the employees of the Civil Aeronautics Administration.

Some weeks ago we had planned a meeting between the heads of our legal and inspection staffs, both Washington and field, intending to use that meeting for the purpose of reemphasizing to all our people the agency's responsibilities in this area. This meeting will be held next week and the remarks that you have made will serve to underline our policies to those of our people who have the initial responsibility of carrying them out.

I might say, Mr. Chairman, that Mr. Davis and Mr. Boyle and myself feel that you have stated our policies much better than we ourselves have been able to do thus far but we intend to carry them out.

The CHAIRMAN. Thank you, I appreciate the compliment. I will get to that statement and reread it.

Mr. PYLE. The safety record of the air industry has been excellent, particularly when the tremendous growth in volume and complexity of present-day air travel is considered.

I might just point out, in this connection, that the percentage of fatalities in the calendar year 1956 was 0.6 passenger per 100 million passenger-miles. And, in the scheduled international operations, those of Pan American, TWA, and so forth, there were no passenger fatalities in the 1956 calendar year, with 4 billion passenger-miles.

So the overall average was approximately one-half of 1 passenger fatality per 100 million passenger-miles flown in 1956.

I merely cite this to point out that the record is a good one. In spite of this we want to make it better. This, I think, is the point we want to keep in our mind at all times.

This growth and complexity can, however, endanger the safety of those traveling in the air as well as those on the ground if strict adherence to the highest degree of care and standards of safety is not maintained.

The responsibility for such adherence is primarily on industry, but is necessarily shared by the Government. It is the Government's responsibility to provide adequate safety standards for the guidance of the industry and to see that those standards are complied with. This both we and the Civil Aeronautics Board, with whom we are working very closely, intend to do.

We recognize, as you indicated the other day, that at times this will not enhance our popularity with those upon whom the hand of Government must fall, but this is unavoidable. I do not think we are

really in a popularity contest in this area. The great numbers of the public who travel by air, as well as the people on the ground, are entitled to rely on the safety protection intended for them by the Civil Aeronautics Act of 1938, and it is our intention to see that they obtain it.

### DC–7 AND F–89 FLIGHT-TESTING ACCIDENT

I would like now to refer to the DC–7 and F–89 flight-testing accident.

In regard to the accident involving the DC–7 and F–89 over California, I should like to explain briefly to the committee the regulations governing the flight testing of aircraft by manufacturers at the time of the accident and the effect of the amendment to the Civil Air Regulations adopted by the Board a few days ago.

Under the provisions of the Civil Aeronautics Act of 1938, as amended, it is unlawful for any person to operate a civil aircraft in air commerce unless there is currently in effect an airworthiness certificate for such aircraft. However, before an airworthiness certificate for a particular aircraft can be issued by the CAA, we are required by statute and the regulations prescribed by the Civil Aeronautics Board to find, among other things, that the aircraft is in condition for safe operation.

In order to make this finding, each civil aircraft coming off the assembly line must be inspected and flight tested by the manufacturer before it is issued an airworthiness certificate and turned over to the purchaser. Such flight tests are called production flight tests and are conducted by the manufacturers under a special flight permit issued by the CAA under section 1.15 of the Civil Air Regulations prescribed by the Civil Aeronautics Board. Each of these special flight permits contains operations limitations prescribed by the CAA which provide in substance that flight tests are prohibited over thickly populated areas or large gatherings of people.

Cross-country flights or flights conducted for hire are also prohibited, and the occupancy of the aircraft is restricted to personnel essential to the flight. A similar flight permit was issued for the DC–7 aircraft which the Douglas Aircraft Co. was flight testing at the time of the accident in California a few days ago.

In regard to military aircraft, however, a different situation exists in regard to flight testing. The Civil Aeronautics Act does not require public aircraft such as those used exclusively in the United States military services to have an airworthiness certificate issued by the CAA. Such aircraft are completely exempted from our control in regard to matters of airworthiness.

Consequently, we do not issue special flight permits for production flight testing by the Northrop Co. of military aircraft such as the F–89. This is as it should be. Military aircraft are not designed for civilian use and, therefore, the airworthiness of such aircraft is a matter which should be properly determined by the respective military services for which they are manufactured. However, the areas within which flight testing of military aircraft is conducted has created a problem with which we are all vitally concerned, not only because it may affect the safety of civil aircraft, but because of the hazards which it presents to persons or property on the ground.

This problem was the subject of consideration by the Airspace Subcommittee several years ago. At that time it was agreed by the

subcommittee, which consisted of representatives of the military services and the CAA and CAB, that instructions would be issued to aircraft manufacturers directing them to test flight military aircraft over areas of low population density.

Following this action, the CAA, working with the aircraft manufacturers and the military, agreed upon certain areas of low population density in which flight testing would be conducted. This program was particularly successful in southern California, where agreement was reached on the designation of numerous areas of this type for use by all manufacturers of aircraft. Past experience in the use of these areas under this agreement was very successful. Until the recent tragic accident there was no instance of an accident to aircraft being flight tested which prejudiced the safety of persons or property on the ground in areas of high population density.

However, as a result of a review of this situation, particularly in light of this accident, the CAA and the CAB agreed that we should use our authority to control air traffic to make mandatory the basic principles achieved and agreed upon through this voluntary program.

To accomplish this, my staff has worked with the CAB in the drafting of an amendment to part 60 of the air-traffic rules which, as stated by Mr. Bakke, of the CAB, prohibits the flight testing of any aircraft, civil or military, unless it is conducted—

(1) over open water or sparsely populated areas having light air traffic and approved by the Administrator, or (2) within a flight-test area designated by the Administrator.

In addition, the regulation will also provide that any flight test must be conducted in accordance with such air-traffic rules as the Administrator may prescribe. This regulation, which was adopted by the Board as an emergency regulation Tuesday morning, provides the CAA with the necessary authority to effectively control all flight testing of aircraft with a minimum hazard to persons or property on the ground.

Under the regulation, any manufacturer of aircraft conducting flight tests will be required to contact the nearest CAA representative and submit a map or chart showing the area within which flight tests will be conducted. If we approve of the area, the manufacturer may conduct flight tests within such area. If not, it will be necessary for the manufacturer to either select another area which is acceptable to the CAA or utilize a flight-test area designated by the Administrator. In order to avoid collision between aircraft operating within the test areas, the CAA will also have the authority, where necessary, to require the operators to comply with appropriate air-traffic rules when operating within the area.

I might add that our people are working right now night and day in setting up these regulations so that this thing will go into effect just as soon as possible.

Mr. Davis advises me that it will be published this afternoon. So that we are a little bit ahead of our schedule on our homework.

### NORTHEAST AIRLINES ACCIDENT AT LA GUARDIA

In regard to the accident involving the Northeast Airlines DC–6A at LaGuardia Airport, I should like to explain briefly to the committee

the supervision and control exercised by the Civil Aeronautics Administration. Such a description of our duties and functions will, I believe, assist the committee to better understand the role of the Government from the inception of an aircraft on the drawing boards of the manufacturer to the time the public boards this aircraft when it is operated by an airline.

In the first place, the Civil Aeronautics Board has prescribed what are commonly referred to as airworthiness standards. These standards include the structure, performance, inspections, and tests which the aircraft must meet before it is eligible for certification by the CAA for use by the public. In the case of air-carrier aircraft such as a DC–6A the specific airworthiness standards are covered under part 4b of the Civil Air Regulations.

Accordingly, from the time the airplane is designed by the manufacturer, the CAA engineers, test pilots, and factory inspectors work with the manufacturer to determine that the particular aircraft meets the prescribed airworthiness standards. When the CAA has determined this, a type certificate is issued for the particular design aircraft. If not, the aircraft must be redesigned to meet these requirements.

The work of the manufacturer and the CAA does not end at this point. If the manufacturer desires to manufacture duplicates of such aircraft, he is then required to obtain a production certificate. But in order to obtain a production certificate he must then show the CAA that he has the facilities, personnel, and quality control procedures to properly and precisely manufacture each aircraft in conformity with the aircraft for which the CAA has issued a type certificate. If he has such facilities and personnel, the CAA issues a production certificate to the manufacturer so that he may reproduce the aircraft. CAA factory inspectors are assigned to supervise the manufacture of such aircraft and determine whether the aircraft is being manufactured in accordance with prescribed standards and procedures.

As each airplane is rolled off the assembly line it must be given a production flight test to determine whether it complies with the airworthiness standards for which it was initially type-certificated. Such a test was being conducted for the DC–7B which was involved in the accident in California. Finally, upon the successful conclusion of such tests CAA issues an airworthiness certificate.

In the event that this airplane is to be used by an airline which has not previously used such airplanes, additonal requirements are imposed. Under part 40 of the Civil Air Regulations, the airline must conduct proving tests with the airplane for a specified number of hours, including operation of the aircraft over the airline's routes. These tests which determine the ability of the airline to operate the particular airplane are accomplished only after the airline and the CAA have spent many hours and days of intensive preparation.

The airline must instruct and train its flight and ground personnel. This is accomplished either by sending them to the factory at which the airplane was manufactured or at a training school of another airline which has received prior approval by the CAA to operate the particular airplane.

At the termination of this instruction and training these men must then pass examinations or tests prescribed by the CAA and the air-

line for the issuance of the necessary certificates and ratings to operate the particular airplane. Having accomplished this the airline must obtain spare parts and maintenance equipment and prepare the necessary instructions for the use and guidance of its personnel operating or maintaining the equipment. All these things must meet the approval of the CAA, including the acceptable practices for the repair, overhaul, and maintenance of the airplane by the airline, and are set forth in operations and maintenance manuals of the airline.

Although the CAB prescribes numerous rules which must be complied with by the airline, the CAA issues many more in the form of operations specifications which are tailored to the type of operations conducted by the particular airline. These operations specifications include, among other things, the specific routes, airports, and types of aircraft which a particular airline is authorized to use, maintenance of the aircraft and its components, including time limitations for the performance of overhaul, inspections, and checks.

When all these things have been accomplished the airline is permitted to use the new type airplane for the carriage of fare-paying passengers over its routes. The CAA's role does not end here. Each airline is under the inspection surveillance of three types of CAA inspectors: Flight operations, maintenance and electronics. I am sure the members of this committee appreciate the fact that these inspectors are unable to be omnipresent and, therefore, cannot personally inspect the administration and enforcement of the rules in regard to each takeoff, landing or repair of an aircraft operated by the airline to which assigned.

We do rely to a great extent upon the fact that we have approved and certificated the system under which the airline conducts its operations. We have also examined and certificated many of the personnel which the airline uses to operate this approved system. This is coupled with detailed knowledge of the company management personnel and the company's operations policies.

Further, we have a system of spot check and inspection which is designed to detect promptly any tendency for the system we have approved to break down and which alerts us to take immediate corrective action.

In addition, we use our enforcement system to impose appropriate penalties against the company and its personnel who are responsible for any failure to adhere to prescribed safety rules. In severe cases this can extend to suspension or revocation of the certificates of individuals or even the basic operating authority of the airline itself.

In the case of Northeast Airlines, I wish to point out that this airline is one of the oldest airlines in the United States. It was issued a certificate of convenience and necessity by the Board under the Civil Aeronautics Act as early as 1938.

This recent accident was the first one fatal to a passenger in the history of the Northeast Airlines and its predecessor company, the Boston & Maine Airways. It has conducted operations from LaGuardia Airport many years prior to the fatal accident.

As Mr. Matthews stated on Wednesday, the DC–6A aircraft involved in the accident was leased to Northeast by the Flying Tigers Airlines. However, the fact that Northeast Airlines did not own the airplane has no bearing upon the accident. Many of the aircraft

operated by the airlines are owned by other airlines, banks, or insurance companies.

The DC–6A aircraft involved in this accident went through the certification procedures which I previously described for other airlines prior to its use by the Flying Tigers for the carriage of passengers and cargo. It was approved under the existing Civil Air Regulations for operation by the Flying Tigers with a maximum seating arrangement of 103 passengers. This seating capacity was within the maximum permitted for an aircraft of that type.

Upon lease of the aircraft to Northeast, Northeast Airlines reduced the maximum seating arrangement for that aircraft to 89 passengers with additional seating for 6 crew members. This provided a total of 95 seats for the adults on board the flight in question.

In addition, there were on board 6 infants in arms, not requiring separate seats, who together with the 95 adults made up the total of 101 persons on board the flight.

Under the performance limitations for the airplane considering the particular runway from which it took off at LaGuardia, it was permissible for this flight to take off with a maximum gross weight of 97,820 pounds. As Mr. Matthews stated to you in his report, the actual weight of the airplane at the time of takeoff was 96,457 pounds. This is 1,363 pounds below the weight which this airplane could have been authorized to operate on that particular flight. A further word on the method of determining the maximum gross weight of an aircraft appears desirable.

Actually, the weight is one which has built into it a large margin of safety. The maximum gross weight is the weight at which the air plane can be loaded and if on takeoff the most critical engine fails at the most critical time, it can still complete the takeoff, climb, and clear a 50-foot obstruction at the end of the runway and be operated back to the airport for a safe landing. This is obviously a much lower weight than the airplane can actually take off under normal operating conditions.

Before Northeast was permitted to use this airplane over its route to Miami, the CAA required it to establish a training program for its flight and ground personnel. Its captains were trained by United Air Lines which has had extensive experience with DC–6 aircraft. All flight personnel received training by the United States Coast Guard in ditching. Most of the flight engineers were trained by United Airlines. Stewardesses were trained in the uses of emergency equipment and assigned duties, and demonstrated their competency in passenger briefing. The pilots were qualified by proving flights over the route, ground instruction, and examinations.

On January 2 an initial round trip proving flight from Boston to New York to Miami was observed by 4 CAA inspectors; 2 of these inspectors were operations inspectors, one a maintenance inspector, and the other an electronics inspector. On the 6th of January, another proving flight was observed from Boston to Miami by CAA inspectors. On this flight there were 3 operations inspectors, 2 maintenance inspectors, and 1 electronics inspector. On the same day a return trip proving flight was conducted with 1 operations inspector, 2 maintenance inspectors, and an electronics inspector.

On the inaugural flight over the route on January 9, which was conducted from Miami to New York, two CAA inspectors were abroad.

A few days later an electronics inspector observed the operation from Miami to New York.

Finally, on the 27th of January, an en route inspection of the Miami-to-New York flight was conducted by a CAA operations inspector. In addition to the foregoing inspections which were conducted over the routes of Northeast Airlines on the 16th of January, a CAA maintenance inspector observed the performance of the periodic inspection of the DC–6A which was involved in the fatal accident. This inspection included work being performed on the engines, propellers, and aircraft. In addition, CAA inspectors have spent over 160 hours in the inspection of flight and ground training by Northeast Airlines in the past 2 months.

In discussing the recent midair collision between the two aircraft in southern California, the committee inquired into the nature and extent of our air-traffic rules and air-traffic-control system as it related to the accident. As representatives of the Civil Aeronautics Board advised the committee neither of the two aircraft was operating under air-traffic control at the time of the accident, nor were they required by existing rules and regulations to be so operated. This situation was caused by the existence of two facts:

In the first place, the two flights were operated in excellent weather conditions; the weather in fact was reported as an unlimited ceiling, with 50 miles visibility. Under the present regulations, aircraft are free to operate in good weather under visual flight rules which do not require the flights to be operated under any air traffic control, except to the extent they require appropriate clearances to land and take off from controlled airports. The effect of this is to place the entire responsibility of avoiding other traffic on the pilot of the aircraft; the so-called see-and-be-seen basis of operation.

Secondly, the aircraft in question, so far as is known, were for the most part, operating off airways in uncontrolled airspace. Existing regulations and practices do not require aircraft operated in uncontrolled airspace to be under air traffic control.

We have previously explained to the committee this situation in connection with this committee's investigation into the Grand Canyon accidents last summer. For that reason, unless the committee wishes to review this problem, we will not repeat the details at this time. However, as we have explained to the committee, we recognize the limitations of the present regulatory system, particularly the inadequacies of the human eye to detect and avoid collisions between high-speed, high-performance aircraft.

As the committee knows, with the benefit of substantial appropriations made by Congress, the CAA has already embarked upon an aggressive program to enlarge and improve the Federal airway facilities and the associated air traffic control system. Substantial progress has been made. However, we are not yet prepared in terms of ground equipment, trained personnel, and airborne equipment to do away with the present regulatory system which permits aircraft to operate under good weather conditions on the "see and be seen" basis; the visual flight rules.

Even with our accelerated program, our traffic control facilities and systems are simply not yet big enough to be able to bring under traffic control in good weather all types of flying, both civil and

89979—57——7

military. We do intend, as rapidly as possible, to provide air traffic control in good weather where required when our system is enlarged enough to accommodate it. However, working as hard as we can, we have not yet made sufficient progress to permit this.

Unfortunately, there is no panacea for this air traffic control problem. Time is necessary to implement the program already authorized by Congress and now underway. Additional controllers must be trained carefully and thoroughly, because they are responsible for thousands of lives and millions of dollars' worth of equipment, and because the operation of the Federal air traffic control system is singularly unique, there is no outside source of obtaining the required experienced controller personnel.

Additional radars, navigation, and communications equipment must be manufactured, installed, and integrated into the system. The civil and military must equip their aircraft with the necessary airborne equipment to utilize the ground system being installed. All of these actions are now underway at the most accelerated pace possible, but they are not yet complete. Therefore, while there will be improvement and enlargement of our traffic-control system, no overnight spectacular results can be achieved in this area.

I would like to interject at this point, Mr. Chairman, just a brief word picture of what we are doing to get along with this job.

We have in our Oklahoma City aeronautical center training classes now in which we are putting our recruit controllers in at the rate of 280 people per class. They have about 10 weeks' classes down there, and then they go out to the various parts of the system.

The CHAIRMAN. What type of personnel?

Mr. PYLE. Aircraft controllers who are being recruited; recruited for the air-traffic controller job.

In other words, they are men we have recruited from the military and others to train as aircraft controllers.

The CHAIRMAN. How much training are you giving them?

Mr. PYLE. About 10 weeks there, Mr. Chairman, and then they go to a facility and get additional training as assistant controllers, and in assistant controller-capacity work, under experienced controllers, with on-the-job training.

The CHAIRMAN. You are turning out 280 every 10 weeks?

Mr. PYLE. Yes, sir.

The CHAIRMAN. About how many are you going to have to have?

Mr. PYLE. I would like to have Mr. Thomas give an answer to that, so that I do not give an incorrect answer, Mr. Chairman.

Mr. THOMAS. Mr. Chairman, our requirements for basic training at the present are 2,400 a year. We expect this to level off in 2 or 3 years to 1,100 or 1,200 a year, which would be our turnover rate.

A part of the existing trainees come directly from the military controller personnel, and we eliminate their primary training if they are assigned to control towers, and thereby we are now able to meet the requirements at the present time. We are also expanding our training facilities.

Mr. PYLE. Mr. Chairman, I would also like to point out that Mr. Thomas has worked out a new program to expedite the training of these volunteers in that heretofore we have relied to a great extent [illegible] job training, but during bad weather days the controller who

is responsible for traffic is under pressure, and he cannot devote the proper amount of time to the job of training these people.

So, in effect, the men are not getting the benefit of the experience of the trained traffic controllers. As a result we are taking these men who are ready to move out into the next category of actually controlling traffic, and we are putting them through separate classes. We are giving them cram sessions, in essence, and those we are moving up are upgrading much faster by this system and getting much more experienced controllers into the situation much more rapidly.

In other areas, I would like, if I could, to brag a little bit. In our navigation-facilities division, Congress appropriated to us $75 million for the use or to procure electronic equipment and other navigation aids and facilities.

The CHAIRMAN. That is for this fiscal year?

Mr. PYLE. For 1957, yes, sir.

Mr. Tippets has set up a schedule in which he hoped to have committed and obligated $40 million in the first 6 months of the year. He has not been able actually to commit that much but has committed $36,500,000 with about $7½ million in transit.

So, he is either on schedule or a little bit ahead of schedule.

Now, this is a prodigious amount. This is a great deal more than the CAA ever procured before. I do not mean to say that we are buying for the sake of buying, but we are buying what we need and we are buying on schedule, and I think this is something that the committee should know.

The CHAIRMAN. That is a part of the 3-year program you presented last year, after reducing it from 5 to 3 years.

Mr. PYLE. That is correct.

The CHAIRMAN. That is very encouraging.

Mr. PYLE. To return to the statement. Specifically, with regard to the conduct of flight tests; because the conduct of flight tests; because the conduct of unusual maneuvers and the necessity for greater pilot preoccupation with instruments and controls may place severe limitations on the ability to see and be seen, we are now developing procedures to implement the new rules recently adopted by the Civil Aeronautics Board.

And, I believe that these were referred to earlier. They are being put into effect this afternoon. Is that correct?

Mr. DAVIS. Yes.

Mr. PYLE. These rules may vary from place to place, dependent upon the characteristics and density of the traffic problem presented. However, as a minimum we will require flight in airspace specifically designated for that purpose outside of densely populated area and adequate coordination of test flights between those persons conducting the flights.

In considering the New York accident of Northeast, the committee indicated its interest in another phase of the air traffic control problem. As was explained to the committee on Wednesday by representatives of the Civil Aeronautics Board, the traffic clearance issued by the control towers to aircraft taking off are limited to considerations of traffic only. Upon receiving a request from an aircraft for clearance to take off, the responsibility of the traffic controller in the tower is to determine whether this can be done without risk of collision

with other known air traffic. If he is satisfied that this can be accomplished, he grants the clearance requested. This is the extent of his responsibility and authority.

I would like to add here too, Mr. Chairman, that this is not also a very popular thing, that we have been doing, which is by shifting our personnel around, getting the best people in the best places, but both Mr. Davis and I feel, at the risk of being somewhat unpopular this is a must and it is being carried out completely as a program that will insure better safety and better men in the key spots.

We have also instituted another program that I think is going to be very significant; that is working in cooperation with the industry and the operators, to insure that if a soft area looks like it is developing in a certain part of the operation, or in certain techniques, we can anticipate it before it becomes a problem by working cooperatively with the industry and taking remedial action then and not waiting until something happens, and then go in and kind of lock the door after the horse has gotten out. This, I think, is a program that will pay dividends. I have discussed this with the pilots and with the representatives of the airlines, and we are in accord that this type of approach is one that we have got to follow out if we are going to get the job done.

I think it is all the more important, because we are on the threshold of the jet era in civilian operations, and we cannot afford to take any chance on this—nor, can we afford to take any chance on any phase of our operations, for that matter.

In conclusion, I wish to assure this committee that, as Administrator of Civil Aeronautics, I consider the safety of the public, both in the air and on the ground, to be my primary concern. As I indicated earlier, I concur wholeheartedly with the remarks made Wednesday by you, Mr. Chairman, that the safety of the public cannot be assured through a soft approach.

As I have explained, the CAA has an aggressive program of improving our air-traffic-control system and facilities. The CAA is also working hard and diligently to improve our safety inspection and enforcement programs. We have enlarged and placed new emphasis on our safety duties through reorganization of our aviation safety offices and the selection of new personnel. We have also started the training of our aviation safety inspectors in jet aircraft to be ready for the advent of the jet in civil use.

We are going forward with these programs as fast as is humanly possible, and we will be glad to discuss our progress and our problems in these areas with this committee at any time.

Now, gentlemen, I mentioned here that we are available for questioning. I will answer any questions to the best of my ability, and if I cannot answer them, we will get the answers for the committee.

The CHAIRMAN. Thank you very much, Mr. Pyle. We are very glad to have had this description of your safety program and the responsibility of your administration in cooperation with the Civil Aeronautics Board and the industry.

We do appreciate the forthright statement that you have made to us today. It sounds fine. And it shows a concerted action to accomplish the desired objectives. The only thing about it is getting everybody to comply.

Mr. PYLE. I am well aware of the great responsibility that I have.

The CHAIRMAN. And, carrying it into effect.

Before I make any further comments, I will give the other members of the committee an opportunity to ask any questions they may have in their minds.

Mr. Moss.

Mr. Moss. Mr. Pyle, on page 4 of your statement you mention that an airspace subcommittee met several years ago and agreed upon certain standards for the operation of military aircraft under tests. You stated that—

> instructions would be issued to aircraft manufacturers directing them to test flight military aircraft over areas of low population density.

The crash in California apparently occurred because of tests over an area of high population density.

Would that appear to be a violation of the agreement?

Mr. PYLE. Mr. Chairman, I think we can best answer that question by reference to these charts, which I think will be sufficiently large so that you can see them.

The CHAIRMAN. What kind of charts are they?

Mr. PYLE. Maps of the area. Mr. Dake, of Mr. Davis' office, the Office of Flight Operations and Airworthiness, is here, and I believe he can explain the points that you make.

I think it may become evident from these charts what you are talking about.

The CHAIRMAN. Very well.

Mr. DAKE. Mr. Chairman, this is a map generally showing the southern part of California and the southern part of Nevada. This is the Los Angeles area (indicating), and this is San Diego, and here is San Francisco, and over here is Las Vegas, Nev., (indicating) on map.

As you will see these areas, and particularly in the Los Angeles area, are a mass of airways and are controlled areas.

The densely populated areas are indicated in yellow. These red areas are restricted areas that have been allocated to the military services for specific purposes, and in which no civil flying is permitted. In fact, in a lot of these areas they do not permit any kind of flying. That is, not any flight by civilians. But most of the flying is of such type as is used by the military.

The CHAIRMAN. How about that area, that large red area?

Mr. DAKE. I would say that that is approximately 100 miles across there—75 miles at least. That is probably about 35 there.

In addition to these areas here, this portion you see here, outlined in red, is restricted to all flying above 20,000 feet.

The reason for this area, basically, is that it is used for testing supersonic aircraft, guided missiles, and pilotless airplanes.

To go back to the flight testing in 1947, the manufacturers in the Los Angeles areas got together with the Los Angeles office of the CAA, realizing that with the expanded growth of the city of Los Angeles, that we must take more precautions to protect the public on the ground.

At that meeting with the manufacturers, we determined those areas in which all flight testing would take place.

Now, the civil air regulations themselves in part 60 state that any flight of aircraft requiring unusual maneuvers will not take place

over inhabited areas or crowds of people, masses of people, or controlled areas, meaning civil airways.

That left to the manufacturers only these small areas which you see are crosshatched.

So that the manufacturers agreed that all prototype or experimental type testing in which the structure of the plane has to be determined would take place over the ocean areas, or over areas which were available at that time in the desert.

Certain other flight tests, which did not involve the structural integrity of the aircraft or involve unusual maneuvers, might take place in other areas, but not over a densely populated district.

In about 1953 the Defense Command set up the defense zones around the United States and within the United States. At that time the Western Defense Force laid out this area which you may be able to see as I point here going down the Mexican border and up the ocean here as the only area in which they were to permit flight testing.

These defense areas, which were constantly patrolled, further shrunk the places where we could actually do flight testing.

In the meantime additional areas have been set up and are now the areas that are given for the military.

Gentlemen, we continually have a great problem before us with the ever-shrinking space that we have to use, together with the increased speed of aircraft. We are going to have a real problem in getting the flight testing done in this area.

Mr. Moss. Over what area did the crash occur on that map?

Mr. DAKE. The crash actually occurred right here. Or the impact was right here.

Mr. Moss. It did occur then over a densely populated area?

Mr. DAKE. I have to rephrase my reply there.

The impact did not occur there. We do not know exactly where—that is, the collision of the two aircraft.

But the impact of the aircraft with the ground did occur there.

I might further explain something I missed here.

At the time we agreed that there would be no flying of any kind over densely populated areas the manufacturers and the military agreed that this red hatched area which you see here would comprise the area over which no flight testing of any kind would be made. So that as to this airplane, the DC–7 which contacted the ground here, it may be found in the CAB examination that the actual collision occurred over here because the jet aircraft actually hit the ground over in that area.

Mr. Moss. How do you define a densely populated area? Is there a rule as to density of population?

Mr. DAKE. There is no specific rule. It means where there is a heavy congregation of people or housing.

For example, generally the civil air regulations prohibit the flight of aircraft over a city under 1,000 feet unless a safe landing can be made in an open area. An open area where a safe landing can be made is what we consider not a densely populated area.

The CHAIRMAN. Would the gentleman yield at that point?

Mr. Moss. Yes, gladly.

The CHAIRMAN. You said that was where the impact was with the ground?

Mr. DAKE. Yes, sir.

The CHAIRMAN. Of the DC–7?

Mr. DAKE. Yes, sir.

The CHAIRMAN. Where did the parts of the jet plane land?

Mr. DAKE. The parts of the jet plane struck about in here. I am not too positive about that. It was right in that general area, outside of the agreed area of no flight testing. That was where the jet struck the ground as I understand it.

The CHAIRMAN. But is that a pretty heavily populated area in there?

Mr. DAKE. No. This is a mountainous area.

Mr. PYLE. Uninhabited mountains.

Mr. DAKE. Or very sparsely settled.

Mr. MOSS. You mentioned unsual maneuvering. I wonder if you could define that for us.

Mr. DAKE. An unsual maneuver would be sometimes referred to as acrobatics or any maneuver that is not required in normal flight. In other words, a fast vertical turn, a roll, a loop, anything else like that would be considered unusual maneuvers.

Mr. MOSS. With military aircraft it is a very broad definition, is it not?

Mr. DAKE. Yes, sir.

Mr. MOSS. It is much broader than would be the case with civil aircraft?

Mr. DAKE. Yes.

Mr. MOSS. Should there not be the same standards applied to both in the testing over areas that, while perhaps are not technically defined as densely populated, are so closely bordering on areas of great density of population that the chances of shifting over those areas is extremely high?

Mr. DAKE. I think that is a problem we have in front of us now.

Mr. MOSS. We must realize that we have ever-increasing speeds. And, from the looks of the map, you have an area prohibited to you for flying because of military considerations, which impresses me with the fact that ultimately it is the military or the civil authorities who are going to have to control the airspace before they utilize it effectively.

Mr. DAKE. Yes, sir, particularly in certain areas.

Mr. PYLE. Mr. Chairman, I would like to comment on Mr. Moss' point.

Mr. MOSS. I would be very happy to have you comment.

Mr. PYLE. This is one of the real serious problems we face in this country today—vanishing airspace.

There is a perfect example of it right there.

Mr. MOSS. The military does not have to justify to you the withdrawal of an area from general use?

Mr. PYLE. This is worked out by coordinated actions through the mechanism of the Airspace Panel of the Air Coordinating Committee, and agreements are hammered out in that panel.

However, I think this national resource that we have right at this time requires a reevaluation of how we handle it.

Mr. MOSS. As I understand your statement, Mr. Dake, it was that there is an area there set aside by the Western Defense Command. And then you mention other areas where, by some agreement, there shall be no flying.

Is the Western Defense Command a part of the Airspace Panel or does it take action unilaterally?

Mr. DAKE. The Western Defense Command was in on this agreement that no flying would be done here because the Western Defense Command was technically involved with the testing of military aircraft, which is the major aircraft production that we have in southern California.

And I might say that the manufacturers who do manufacture all-military aircraft have agreed with us that this type of flight testing will be done by the military aircraft as well as the civil aircraft.

Mr. Moss. Those are all the questions on that point. Mr. Chairman, I have one other question.

The CHAIRMAN. Just a minute before you close that map. Mr. Alger, I think, wanted you to yield, Mr. Moss.

Mr. Moss. Yes, sir.

Mr. ALGER. On this specific point, could you estimate the distance in ground miles that could have been between the point of collision and the point of ground impact in view of the 7 feet of wing end cutoff, the empennage damage, and so forth, wind drift and other factors which you already know as a result of your investigation?

How many miles across the ground on the chart could the collision have occurred from the impact of the DC–7 with that schoolyard?

Mr. DAKE. It would be purely an estimate on my part.

Mr. ALGER. I understand that.

Mr. DAKE. But I must review for a minute.

The aircraft, we know definitely, were flying at 25,000 feet, which is approximately 5 miles high.

The CHAIRMAN. And over what area?

Mr. DAKE. At that time the DC–7 was in here.

The CHAIRMAN. I am not talking about at that time. I am talking about during the testing.

Mr. DAKE. I am not positive where the DC–7 was at all times during the flight. They were in this area. We know that.

But, from what I understand, the DC–7 was flying in this direction, and the jet was flying in this direction and turned into him.

Being at 25,000 feet or approximately 5 miles, the DC–7, traveling at a speed of over 300 miles an hour and having a portion of 1 wing clipped off, actually his flight would progress to a certain degree.

One of our inspectors, I understand, with whom I have talked, actually saw the collision from a distance away, and he said that the DC–7 after being struck went forward in a tumbling motion.

Assuming it did fall in a trajectory of approximately 45°, then from the point of collision to the point of impact with the ground would be approximately 5 miles, which might represent a distance to the point of impact about here, over into an approved area where the actual collision took place. That is a premise on my part.

Mr. PYLE. Mr. Chairman, I would like to comment that Mr. Dake's statement is a statement only based on his own knowledge and opinion, and that the true facts will be brought out by the Civil Aeronautics Board through its competent technicians who are now investigating this accident.

The CHAIRMAN. Yes, that will be understood.

Mr. PYLE. Just so the record is clear on that point.

Mr. Moss. I have one other question on that.

The area that was cleared for a flight of that type just outside of the area of ground impact is approximately how large?

Mr. DRAKE. This area, I would say, in there is about 15 miles long and probably 4 miles here and 5 miles here.

Mr. Moss. They were testing two jets and one DC–7 in an area of about 15 by 7 or 8 miles. Is that not rather hazardous? It is apparently surrounded by airways.

Mr. DRAKE. I am afraid I haven't quite made myself clear.

With the manufacturers and the military there are two type of flight testing that are considered here. One is a type of flight testing that involves unusual maneuvers. That normally applies to prototype or experimental-type aircraft.

When we come to the production-type aircraft, the aircraft has been structurally approved and we know it can fly.

Actually what is happening then in a production test flight is that it is a functional check of the airplane. The airplane has been approved.

So that, broadly, in these areas outside of this red surface here we consider that if it is a production test flight, not a first production test flight but a production test flight involving the checking of instruments and so on, all of this space is available.

Mr. Moss. All of the space?

Mr. DRAKE. We would have to do that or we would not have any room to test any.

Mr. Moss. You would still exclude the yellow area from that statement of all space, would you not?

Mr. DAKE. It excludes this entire area which covers all of the heavily populated area. I mean we have put a safety factor on it, so to speak.

I might add that this is an extremely important problem because flight testing that is going on in southern California today we know averages between 100 and 600 flights per day.

Mr. PYLE. I think, to clarify your point, Mr. Moss, I might restate it because I am not sure that we answered successfully what you had in mind.

There is no production flight testing in that blocked-off area. Is that not right, Mr. Dake?

Mr. DAKE. That is right. There is no flight testing of any kind.

Mr. Moss. Of any kind as I understood it.

Mr. PYLE. I did not know whether that was clear.

Mr. Moss. As a result of the crashes over California that you have had, you have, with the approval of the CAB, made some changes in regulations?

Mr. PYLE. That is correct, sir.

Mr. Moss. But, as a result of the crash in New York, you did not feel it was necessary to change any regulations?

Mr. PYLE. Not at this point, Mr. Moss. We have not had the benefit of the exhaustive investigation which will be made by the Civil Aeronautics Board. And until we have the benefit of that information we do not feel that any violation of existing regulations took place, nor that any additional regulations at this time are appropriate.

Mr. Moss. Then we have touched upon the control of airspace. Do

you feel at some time soon there is going to have to be a grant of authority either to one agency or the other for the right to control the airspace over this Nation?

Mr. PYLE. This may be the manner in which it must be resolved. This will have to be done. Some constructive, positive steps will have to be taken to more equitably use our national resource which is airspace. And I say this in all sincerity if for no other reason than that we are getting more and more of these jets flying in the military.

You will recall that the last propeller-driven fighter was retired the other day. So that their operations are almost entirely jet. The civil jets will be coming in. We are running out of airspace, and we are going to have to invent our way out of this one. I cannot say exactly how it will be.

Mr. Moss. You made the statement that the matter of airworthiness for military aircraft is, as it should be, left with the military.

Mr. PYLE. That is correct, sir.

Mr. Moss. Does that include the type of military aircraft used in almost a commercial operation such as the Military Air Transport Service?

Mr. PYLE. Mr. Davis can correct me on this, but I think the answer there is that the great majority of those aircraft are bought off the civil production line. For instance, the DC–6A's counterpart in the military, practically bolt for bolt, is the C–118 in the Air Force and the R6D in the Navy. In other words, they are bought to commercial specifications and standards of airworthiness.

So if you get on a C–118 we have put our stamp of approval on it before it went to the Air Force.

Is that right, Mr. Davis?

Mr. DAVIS. It is not quite correct, in that they do have off-the-shelf procurement. The military, when they purchase a transport aircraft in general take the off-the-shelf, as we call it, requirements of the Civil Air Regulations. But at the same time they do have their own equipment, and the fire control is different, and because it may be different we could not approve it as a 4–b aircraft.

Mr. Moss. There is a great volume of military aircraft, is there not?

Mr. DAVIS. Yes, sir.

Mr. Moss. Much of it is not in the planes that would be designed for combat use, the actual engagement in combat and carrying some sort of weapon?

Mr. DAVIS. That is correct.

Mr. Moss. They are cargo carriers or they are personnel carriers?

Mr. DAVIS. That is correct.

Mr. Moss. And they are used extensively over the continental United States?

Mr. DAVIS. Yes, sir.

Mr. Moss. Should there not be some control over the airworthiness of traffic of that type? Some standard that would at least assure the public that they were equally airworthy with planes operated by commercial airlines?

Mr. DAVIS. The military have their own inspectors in the factories. And their standards of safety, insofar as the requirements to protect the public underneath are concerned, are very adequate.

Mr. Moss. I just raise the question, Mr. Chairman, because I have been somewhat alarmed by the great number of crashes of certain

types of military troop-carrying planes, and I just wondered if the same high standards were being maintained as we expect in our commercial airlines.

Mr. DAVIS. No, sir. Our standards are higher than the military.

Mr. MOSS. Is that a good thing, do you feel? Or is there adequate justification for the lower standards for military aircraft?

Mr. DAVIS. I cannot answer that.

Mr. MOSS. Mr. Pyle, would you care to comment?

Mr. PYLE. Mr. Moss, I think from the standpoint of the protection of the people on the ground that the standards are adequate.

I think, in my opinion, the question probably would have to be put to the military services themselves as to the manner in which they develop these standards and how they apply them. I believe there is that point, however, in the question you bring up. At this point I would like to consider it, frankly, Mr. Moss, because this is something we ought to study. It is a very good point.

Mr. MOSS. Thank you, Mr. Pyle.

Those are all the questions I have.

The CHAIRMAN. Mr. Wolverton?

Mr. WOLVERTON. I regret that I was not present during all of your testimony, but I have attempted to go through your prepared statement.

There are several questions that have come to me in connection therewith, but I think it might be covered, in large part, by my reference to the statement that you made at the end of page 15 in your statement, which reads as follows:

> Upon receiving a request from an aircraft for clearance to take off, the responsibility of the traffic controller in the tower is to determine whether this can be done without risk of collision with other known air traffic. If he is satisfied that this can be accomplished, he grants the clearance requested. This is the extent of his responsibility and authority.

Is there any authority reposed in any Federal agency to determine whether it is safe from the standpoint of weather conditions?

In other words, suppose that there is a snowstorm or a windstorm, a thunderstorm or whatnot. Does any Federal official have the right to hold a plane on the ground? Or is there any official whose consent they must have to take off?

Mr. DAVIS. Sir, we have established for each air carrier the minimums below which they may not take off or land. So if you would take a case where a pilot is insisting that he take off below those minimums, we do have the right to stop that pilot if we are at the scene and consider it an emergency for the safety of the people.

Mr. WOLVERTON. As I take it from the statement that is made, the controller in the tower has the sole right to determine whether it is safe for that pilot to take off. That is, safe from the standpoint of other aircraft that may be in that locality.

What I am very much interested in, and some of my questions day before yesterday indicated, was to ascertain to what extent there is discretion to be exercised by the Federal authorities as to whether the weather conditions are such as to make it appropriate to take off, or whether the plane is in the proper condition to take off from a mechanical standpoint, and the many other incidentals that go into the question of air safety. It might be a question of the type of gasoline that is used.

Now is that left entirely to the airline companies to decide that? Or their agents to decide whether the ship is airworthy?

I appreciate the fact that they must have, in the first instance, a certificate of airworthiness as to that particular plane. But whether it is in good condition when it takes off, is there anybody charged with that responsibility? Or is that left entirely to the company or its officials and agents to determine?

Mr. DAVIS. I think I can answer that question for you, sir, by telling you that each airline has assigned to it at least three types of inspectors from the CAA. Those inspectors are assigned at the headquarters of the airline, and also travel throughout the route structures approved for that airline.

The maintenance inspectors are at all times in the shops. The operations inspectors are with management, with the pilot-training program and with the flight engineer-training program, and they are riding on the line on en route inspections. So at all times we have a system spot inspection that is going on on all carriers in this country.

I think I can tell you that the integrity of the aircraft is up to the air carrier itself. But we have the final say on whether an airline or an aircraft is responsible and has the proper airworthiness.

Mr. WOLVERTON. Take, for instance, the plane that crashed in the New York accident. As I understood it the day before yesterday from the testimony, that plane had come in from Miami that day. Is that correct?

Mr. DAVIS. Yes, sir.

Mr. WOLVERTON. And it was taking off again the same day to return to Miami. Is that right?

Mr. DAVIS. Yes, that is correct.

Mr. WOLVERTON. How long had it been on the ground from the time it arrived until it was to take off under its schedule?

Mr. DAVIS. If you will excuse me, I will ask our technician.

Mr. Dake, do you want to answer that question?

Mr. DAKE. It was late on arrival.

Mr. HALEY. It was scheduled out at 2:45 p. m., and scheduled in around 1 o'clock, I believe.

Mr. WOLVERTON. You mean the plane was scheduled to arrive from Miami at 1 o'clock and had to go out again at 2:45?

Mr. HALEY. Approximately.

Mr. WOLVERTON. So that under the schedule it would only be on the ground for an hour and 45 minutes. Is that right?

Mr. HALEY. Yes; that is approximately correct.

The CHAIRMAN. Will you identify yourself for the record so we will know.

Mr. HALEY. I am S. D. Haley, supervising agent of the Boston ASD office.

The CHAIRMAN. Thank you.

Mr. WOLVERTON. Are you an agent of the CAA or of the company?

Mr. HALEY. Of the Civil Aeronautics Administration.

Mr. WOLVERTON. Was there any Federal agent at La Guardia who was charged with the duty of examining that plane in that 1 hour and 45 minutes that it was on the ground before it was scheduled to take off again?

Mr. HALEY. No; not on that day.

Mr. WOLVERTON. Whose responsibility was it then to determine whether it was safe to take off with that particular plane?

Mr. HALEY. It would be the responsibility of the airline on that day.

Mr. WOLVERTON. Could the question of the type of gasoline used at the time or for preceding flights of this ship have any bearing upon its ability to take off?

Mr. HALEY. If I understand you correctly, you wish to know if the gasoline used by Northeast Airlines on that date was satisfactory. Is that correct?

Mr. WOLVERTON. We will limit it to that day for the moment, but I will go further into that with my next question.

I assume, from answers given the day before yesterday, that it is necessary to use a certain type of gasoline.

Mr. HALEY. That is correct.

Mr. WOLVERTON. Who makes an inspection of the ship before it takes off to determine whether the rules and regulations have been complied with in that respect?

Mr. HALEY. The company does that on a routine basis. We make spot inspections of it.

Mr. WOLVERTON. When you say spot inspections what does that mean?

Mr. HALEY. We spot-inspect or, rather, we inspect the carrier on a spot basis to determine that they are complying with the rules and regulations established for their operation.

Mr. WOLVERTON. How often is that spot check made?

Mr. HALEY. It is as frequently as we can get to it, and we have time to make it.

Mr. WOLVERTON. That does not answer my question.

I say how often in your experience are those spot checks made?

Mr. HALEY. Do you mean fuel checks?

Mr. WOLVERTON. Yes.

Mr. HALEY. Northeast Airlines makes them every day. And I would estimate that we get around to inspecting each facility on that particular basis every few months, as to the system.

Mr. WOLVERTON. What was the answer you made using the word "facility"?

Mr. HALEY. Each station.

Mr. WOLVERTON. If you have the facility, did you say? I did not catch what you said.

Mr. HALEY. When we get around to making the facility inspection at each station.

Mr. PYLE. At each airline stop, Mr. Wolverton, I think is what Mr. Haley has reference to.

Mr. HALEY. Yes; that is right.

Mr. WOLVERTON. What could or does transpire then between these checks that may be a month apart nobody from the Federal Government has any knowledge of whatsoever?

Mr. HALEY. We are spot checking various stations as frequently as we can. We also are spot checking in other phases of the operation.

I had reference to a particular inspection when you asked me.

Mr. WOLVERTON. Well, you certainly know what I am trying to get at. I am trying to get at whether the type of gasoline meets specifications.

You say you make a spot check which may be once in every few months. I am asking you what agency of Government or what Federal employee knows what is taking place between those checks.

Mr. DAVIS. Sir, could I try to answer that question for you, please?

Mr. WOLVERTON. Yes. I would like to have the answer.

Mr. DAVIS. The question of the gasoline is determined like this:

The manufacturer of each engine determines and specifies the exact type of gasoline that that engine should use. And in some cases there are 2 or 3 or 4 different types that are all right.

The airline decides what type of fuel they wish to buy or procure for that particular type of engine. Therefore, they make a contract with a fuel deliverer, and we inspect and supervise that particular contract, and know exactly what type of fuel they have contracted to buy.

The airline itself carefully screens that gasoline before it is put in each aircraft. They screen it for water, and they test, and they know exactly what type of fuel it is.

I do not think there is any problem that is involved in the case because we do check, let us say, at LaGuardia probably every day around the line the type of gasoline that is being put in.

But what Mr. Haley was talking about was on the whole system of the airline, which probably involves 30 or 40 stops. He gets around to each stop once every 2 months.

Mr. WOLVERTON. That throws a little bit different light on it than I had gathered from the testimony.

Then do I understand that before this ship took off someone representing the Federal Government made an examination of the gasoline that was put into that ship?

Mr. DAVIS. I do not know the answer to that question.

Mr. WOLVERTON. Was there anyone charged with that responsibility?

Mr. DAVIS. That is a part of an overall responsibility, that we do inspect.

Mr. WOLVERTON. An overall responsibility on the part of whom?

Mr. DAVIS. Of the inspectors assigned to that airline.

Mr. WOLVERTON. Was there, on the day of this crash, an inspector of the Civil Aeronautics Administration assigned to that particular airline?

Mr. DAVIS. Yes, sir; assigned to that airline. But I do not know whether he inspected that particular flight before it took off.

Mr. WOLVERTON. It would have been his duty to do it, would it not?

Mr. DAVIS. No, sir. The duties do not include the inspection of each flight before it takes off.

In LaGuardia Field, for instance, there are probably 1,200 or 1,300 takeoffs.

It is impossible for us to inspect each flight before it takes off or lands, after it lands.

For instance, at LaGuardia Airport there are a thousand operations a day, and we could not possibly cover each aircraft before it took off because we do not have enough personnel.

And I think you should understand, sir, that the air carrier itself has the responsibility, by the act, to see that their operation is safe. They share that responsibility with the Government. And I assure

you that they do not want accidents. I assure you that they do everything in their power to prevent them.

We all make mistakes. So, between the two of us, I think we have a good team.

Mr. PYLE. I would like to supplement what Mr. Davis has said, Mr. Wolverton, in this respect: Ours is a system of joint responsibility. And, as I pointed out in my testimony, wherever we see a danger sign or even an intimation that this system is starting to break down we move in as shock troops. And, believe me, we are not very popular. But we go through everything. And in certain instances we have had an inspector on every plane that took off on an airline where we felt there was a problem.

In this particular instance we did not feel there was a problem. And this particular flight, I think I am correct in stating, was not inspected by a Federal official unless one happened to be available at that particular instant.

Mr. WOLVERTON. It may seem to some that I was speaking unduly long with respect to this question of gasoline.

By way of explanation I will say that on a previous investigation that we had some years ago that became a very important element for consideration. While I have forgotten all of the technical testimony that was given, there lingers in my mind sufficient to know that the question of lead and the amount of lead that was in the gasoline, and all that sort of thing had a very direct bearing upon what might be the condition of the valves and all that sort of thing. That is the reason that I am spending the time on it, as one element that could enter into the possibility of an accident.

I am not doing it with the thought that that may have been the reason in this particular accident, you understand. You have not come to any conclusion as yet as to what was the reason.

You say that the load was within the fixed certificated weight that the airplane could carry and so forth and so on, but nobody has as yet stated what the reason was that it did not take off successfully when it would seem as though it should be expected to.

Now, I am just trying to emphasize by my questions that I think there is a situation existing where the Federal Government does not exercise the authority that people who use the planes have a right to expect of them.

Now, I am not saying that there are legislative duties that are laid down that are not complied with. That may or may not be the case. But what I am trying to point out is this, that there are certain areas where it would seem to me proper for the Federal Government to exercise a stronger hand in examination or inspection than it does at the present time, and not confine it merely to the control-tower personnel who determine whether it is safe for a plane to take off from the standpoint of other traffic. I think it ought to go further than that. I think there ought to be, on the part of the public, a feeling of assurance that these important matters are not left entirely to the discretion of a company but that there should be some more intimate observation, examination or inspection by some Federal official.

For instance, there is a certain length of time in which an airplane must be overhauled. It is after so many hours of flight, I assume. There is a regulation that requires that.

Now, is there any Government official at LaGuardia Field whose duty it was with respect to that particular plane to determine whether it had had the necessary overhaul or checkup as was required by the regulations of the Civil Aeronautics Administration?

Mr. DAVIS. Yes, sir; we determined that.

Mr. WOLVERTON. What did you determine in this particular instance as to whether there had been an overhaul of this particular airplane or its engines?

Mr. DAVIS. I believe I should call on Mr. Keeler, who is the senior maintenance agent assigned to Northeast Airlines, to tell you a little of the history of that particular aircraft, if you wish, sir.

Mr. WOLVERTON. I am not merely asking for the data with respect to when that overhauling took place, although I am interested in that also, but what I am interested in is, was there any Federal official at LaGuardia whose duty it was to examine the records before that plane took off to determine whether it had had the overhauling that the regulations required it to have?

Mr. PYLE. Mr. Wolverton, I would like to, if I could, inject myself into this discussion to this extent: This again becomes a problem of numbers and people. Now, if we inspected the thousand-a-day take-offs at LaGuardia and at Chicago and at San Francisco and Dallas and so forth we would run out of people. This is the problem.

Now let me point out that I am not——

Mr. WOLVERTON. Just a minute.

I want my question to be sufficiently understood that we will get all the information that we wish you to give us and that we would like to have.

Mr. PYLE. This is our hope, that we can give it to you.

Mr. WOLVERTON. I would take it that in what you are saying there is a great deal of truth. And I did not necessarily wish to imply by my question that there had to be a physical examination of the engines because there would be so many elements that would enter into it. I can see it would be a very time-consuming operation.

But was there any data there in the form of records that someone would look at, which would only take a minute or two to look over and see whether that plane had been overhauled or what overhauling took place, and if and when it did take place?

Now are there that kind of data present at LaGuardia, and is it the duty of a Federal official to look over those sheets containing data of that kind before they permit a plane to go off? Or do they have any authority to stop them from going off?

Mr. DAVIS. May I answer that question, sir?

Mr. WOLVERTON. Certainly.

Mr. DAVIS. At LaGuardia Field we have an air carrier office with 11 inspectors assigned to that office.

The Northeast Airlines, American Airlines, all the airlines who have bases at LaGuardia have their records there at that location on that segment or division of their system. And our inspectors are constantly going through those records, talking with the pilots and making their inspections.

So the answer to your question is definitely "Yes."

Mr. WOLVERTON. No. I would take it that the generality of some parts of your answer would indicate that you have not grasped en-

tirely the significance that I am trying to put before you in my question.

Mr. DAVIS. I am afraid I have not, then.

Mr. WOLVERTON. You say that all of that evidence is there and you are constantly going over it. I am asking you a specific question.

Was there any Federal inspector who was charged with the duty when that plane came in at 1:45 and before it took off on a scheduled 2:45 to look at the data to see whether there had been an overhauling within the rules and regulations? Or is it just that you keep generally familiar with these things, as you say, by constantly going over them?

Mr. DAVIS. That is a company responsibility.

Mr. WOLVERTON. "Constantly" would carry the thought to me that there was not a specific examination. That is what I am trying to find out.

Mr. DAVIS. That, sir, is a company requirement.

At the end of each flight the pilot writes up in the logbook of the aircraft the complaints that he may have with regard to the operation of that aircraft. At the time he lands the company maintenance personnel come and examine the logbook and they take any action that the pilot says needs to be taken. That is a procedure at each flight termination.

Mr. WOLVERTON. That is very good.

Mr. DAVIS. Before the aircraft can take off, the company has to turn it loose as airworthy. That is their responsibility. That is what we spot-check.

Mr. WOLVERTON. That is very good. But that leaves that responsibility entirely on the company, does it not?

Mr. DAVIS. No, sir; not entirely, because we are there and are spot-checking and examining records and aircraft.

Mr. WOLVERTON. Is it the duty and was it the duty of an individual representing the CAA on the day of this crash that you can say definitely he looked up the record of this ship from the data that the company had on file and knew that it had complied with all the regulations with respect to when there should be an overhaul?

Mr. DAVIS. No, sir; that is not our duty.

Mr. WOLVERTON. That is the point.

Mr. DAVIS. It is not our duty or system to inspect each aircraft before it takes off and declare it airworthy.

Mr. WOLVERTON. That is the answer I have been striving to get.

Now will you bear in mind that nobody except the company evidently made that examination, or was charged with it. And bear in mind that the circumstances of this flight would indicate that the company was pretty hard pressed for facilities to carry the people to Florida. For here is a plane that came in, as I understood it, which was scheduled to come in—I don't know what time it actually did come in, but I am taking the time on the basis of what you say was the scheduled time of arrival, at 1:45.

Mr. DAVIS. Approximately 1 o'clock.

Mr. WOLVERTON. One o'clock.

And it was taking off again at a quarter of 2, if it went on schedule.

Mr. DAVIS. 2:45, a quarter of 3.

Mr. WOLVERTON. 2:45, yes. Which is a very short time for it to land, turn around, and be serviced in whatever way is necessary, by the supplying of gas, and so forth and so on, and then take off again.

It indicated to me that this flying up from Miami and turning around in such a short space of time and going back would indicate that they were short of equipment and they had plenty of passengers and wanted to get them out as fast as they could.

It further appeared, if I remember the testimony correctly, that at first there were only some 80 passengers to make the trip, but, with staying over for a period of hours waiting for conditions to change, weather conditions, there were others added to it until finally it took off with a load of 101, which indicated to me that there was a very great urge on the part of the people to get down to Florida and a very great urge on the part of the company to accommodate them in getting them down when they would bring a plane in and turn it around in a question of approximately 2 hours or a little over maybe and send it right back again.

And did they send it back with the same crew that it came up with?

Mr. DAVIS. Yes, sir.

Mr. WOLVERTON. Do you see what I am driving at?

Mr. DAVIS. No, sir.

Mr. WOLVERTON. It does seem to me—and I will not take any further time because I have already taken too much time and the chairman has been very indulgent with me, but, to my own way of thinking, this hearing so far has convinced me that there should be a further Federal inspection or responsibility of inspection that I have found in this or other instances to take place.

I will not go into the California one because that takes time and some of my friends on the committee have their right to question. But I have some very serious questions in that connection that have arisen in my mind also.

The CHAIRMAN. We are taking up a great deal of time. And I hope—it is just a suggestion, of course—that it will not be a usual thing.

Mr. Wolverton spent 15 minutes trying to get an answer to a question when you could have just said "No" at the outset and it would have been answered, and it would have saved a lot of time because facts are facts. The procedure is what you have decided upon and you should not hesitate to state what it is.

Mr. PYLE. Mr. Chairman, if we did not, I was trying to be responsive to Mr. Wolverton's request for information. And it was for that reason we tried to explain our system as we see it. It was not intended to——

The CHAIRMAN. That had been explained, and you explained it three times while you were trying to answer the question and finally you said "No."

Mr. PYLE. I apologize.

The CHAIRMAN. It is nearly 12 o'clock.

Mr. Dingell?

Mr. DINGELL. I have no questions, Mr. Chairman.

Mr. Hale?

Mr. HALE. Yes.

I wondered, in the first place, whether I heard right in reference to the collision in California.

Was the statement made that the actual collision occurred over a sparsely settled area but the wreckage fell on a congested area? Did I hear that right?

Mr. PYLE. I think the proper answer, Mr. Hale, is this is what appears to us to have happened. However, the final determination as to what exactly happened is the responsibility of the Civil Aeronautics Board, and therefore our position is merely that this is what appears to have happened.

The final answer will be obtained by the exhaustive analysis made by the Civil Aeronautics Board.

Mr. HALE. Now I am left in the dark.

You know where the collision occurred, do you not?

Mr. PYLE. Mr. Dake will try and answer that one, Mr. Hale.

Mr. HALE. Come up here, will you, please.

Mr. DAKE. We do not know exactly the spot that the collision occurred. That is to be determined by the investigation of the Board.

Mr. HALE. You said something about it occurring over mountainous area.

Mr. DAKE. I said it could be assumed that it occurred there because of the velocity at which the airplane was traveling and the momentum that would carry it after it was struck before it hit the ground actually.

The CHAIRMAN. Would the gentleman from Maine indulge me for just a moment.

It is 5 minutes to 12, and Mr. Pyle can be back this afternoon, I presume.

Mr. PYLE. I am at your disposal, Mr. Chairman.

The CHAIRMAN. The Chairman of the Civil Aeronautics Board cannot be back this afternoon because of his tight schedule, and I now wonder if we could suspend with Mr. Pyle at this moment and let him come back at 2 o'clock and take up where we left off in order to give Mr. Durfee an opportunity to make a brief statement or answer some questions that were raised the other day which some thought should have been passed on to the Chairman of the Board. Would that be satisfactory?

Mr. HALE. That is all right.

The CHAIRMAN. If there is no objection, we will ask you to step down, Mr. Pyle.

## STATEMENT OF JAMES R. DURFEE, CHAIRMAN, CIVIL AERONAUTICS BOARD; ACCOMPANIED BY OSCAR BAKKE, DIRECTOR, BUREAU OF SAFETY REGULATION, CIVIL AERONAUTICS BOARD

The CHAIRMAN. Mr. Durfee, we regret if we have caused you any inconvenience with your schedule today, but we appreciate your coming down here in connection with these important incidents. And, as we understand, at a later date you and the entire Board will come up for a visit with the committee on an overall broader explanation of your work.

But at this particular time we are interested in these two recent accidents.

Did you have a statement that you wished to make to start with?

Mr. DURFEE. Mr. Chairman, for the record, my name is James R. Durfee, and I am Chairman of the Civil Aeronautics Board.

I appreciate the courtesy which the Chair has extended to me personally in deferring my presentation from Wednesday because of the fact that we were conducting an oral argument on Wednesday on a question of the transpolar route from the west coast to Europe.

The CHAIRMAN. I might say you had very able representatives here pinch-hitting for you.

Mr. DURFEE. Mr. Bakke and Mr. Matthews, I understand, testified practically the entire day.

The CHAIRMAN. They both did an excellent job. But we did get into one or two policy matters that they thought ought to be handed over to you.

Mr. DURFEE. I would like to say for the record before I answer any questions that I have sat and listened to Mr. Pyle's statement. And insofar as his statement refers to the joint efforts of the Civil Aeronautics Board in making the rules, and the Civil Aeronautics Administration in administering the rules, which does require a very close degree of coordination, that I echo the statements that he has made on the efforts that we are making in this regard.

I would merely say at this time that I am prepared to answer any questions that I can answer on this matter. And I would like to add to that, Mr. Chairman, that as to any specific questions that may be addressed to me as Chairman of the Board, as to what happened in either the accident in California or the accident in New York, the Board is now conducting an intensive investigation in both of these accidents.

Neither one of these investigations has been completed. On the completion of these investigations it will be my obligation as a quasi-judicial officer, acting under the authority of the Congress, to make an official, judicial determination as to the cause of these accidents.

I trust, Mr. Chairman, that we will be able to do that before we come back, before your next meeting.

I make this statement because I would like to make it clear to the committee that any reluctance that I may have about answering specific questions as to what happened in New York or what happened in California is because I as a judicial officer of the Congress, who will be ultimately called upon to decide these questions as a question of fact in a quasi-judicial capacity, am at present under very definite limitations as to what I could properly say now.

I do not believe that any member of this committee or the Congress would want me, midway in an investigation of either one of these accidents, which I will ultimately be called upon to officially determine, to attempt to ascribe any responsibility or attempt to draw any conclusions at this time until the investigations have been completed and the Board has made an official determination.

At that time I shall willingly come before this committee and explain in detail as far as we were able to determine what happened, where it happened, why it happened, and, if possible, the responsibility, if any, that can be ascribed.

I make that statement, Mr. Chairman, because I am sure that you will recall that in the investigation of the Grand Canyon accident that was held shortly after that accident, in hearings before your committee, conclusions were drawn, including conclusions by staff representatives of this Board, while the investigation was still underway, which laid the blame for the accident.

Specifically, I think you will recall, Mr. Chairman, that one witness testified in a manner which ascribed the responsibility to the pilot of the TWA airplane.

The fact, as subsequently developed in the investigation, was that the Board was unable to specifically ascribe the responsibility for that accident to either of those pilots.

Therefore, I ask the consideration of this committee, in view of my official position, in questioning me as to what happened and why it happened, to consider the limitations that I am under as a quasi-judicial officer of the Congress.

The CHAIRMAN. Well, you do not mean to indicate that you are ready to announce your decision on the Grand Canyon incident today, do you?

Mr. DURFEE. I would say on that matter that we were ready to announce our decision some time ago, Mr. Chairman.

The decision had been prepared and at that time we were advised that another witness had been located who claimed to have seen this accident.

We deferred the issuance of the decision because of the fact that the testimony of anyone who claimed to be an eyewitness to that accident, in which there were no survivors, is of tremendous importance. We have, therefore, deferred our decision, and I am not ready today to announce what our decision is.

The CHAIRMAN. I appreciate very much the limitation, and we all do, under which you are here today.

We do not expect, of course, to have you explain or even describe the accidents themselves. We know very well you do not have that information. In fact, it was described to us day before yesterday very well from the information already obtained up to this point.

If the members will indulge me with the limitation of time we are under, I will try to cut through this in order that we can get what I assume the members of the committee wanted to get from the standpoint of procedure and some answers on policy matters.

In the first place, we recognize that the Civil Aeronautics Board makes the rules that are applicable to commercial aviation. Is that true?

Mr. DURFEE. Yes, sir.

The CHAIRMAN. The Civil Aeronautics Administration, the CAA, administers those rules.

Mr. DURFEE. Yes, sir.

The CHAIRMAN. When an accident occurs then it becomes the responsibility of the Board to investigate that accident.

Mr. DURFEE. Yes, sir.

The CHAIRMAN. And it becomes the responsibility of the Board, insofar as it can establish facts, to place the responsibility for the accident.

Mr. DURFEE. Yes, sir.

The CHAIRMAN. There was a great deal of feeling which developed the day before yesterday, and perhaps on the part of all of us in the Congress, that there is a tendency down at the agencies to try to avoid fixing definite responsibility when something happens.

That was the reason that I made the statement that was referred to by Mr. Pyle. And it was based on the fact that we must further

realize that today we are in the jet age and some of the old policies that we have pursued in the past are going to have to change.

And I think that the feeling is based on the fact that perhaps we who are responsible for the legislation, you who are responsible for the rules, the CAA who are responsible for carrying them out, and you who are responsible for the investigations sometimes are afraid they are going to hurt the feelings of somebody, and therefore endeavor to work around and finally come up with no fixed responsibility for anything.

Now I brief you on that, Mr. Chairman, to let you know what developed at the meeting the other day.

As Mr. Wolverton said, there are many questions regarding the California accident. And those, insofar as policy matters are concerned for which you have responsibility, were pretty well aired out.

I will ask you this further question about that:

Do you find that, in trying to adjust and revise your rules where the military is involved, there is any difficulty in coming to an understanding with the military?

And I want you to be very frank to say you do or you do not.

I just know that sometimes we do not like to get into a fuss, but nevertheless we are coming into a situation now with new equipment and new types of planes and, as Mr. Pyle said a while ago, where the airspace is used up, where we have got to face up to the facts.

Mr. DURFEE. Mr. Chairman, the coordination of the rulemaking of the Board, with the authority of the military, is accomplished in part through the Air Coordinating Committee, on which I am the representative of the Civil Aeronautics Board.

This Committee is composed of, if not the top officials of the Air Force, the Army and the Navy and the entire Defense Establishment, the next to the top. For example, I believe in the case of the Army it is the Under Secretary for Air and, the Navy, a position of the same stature.

The Air Coordinating Committee has working, under the jurisdiction of the Committee, an Airspace Committee and an Air Navigation Development Committee. And the coordination between the military and the civil authorities, the CAA and the Commerce Department, also being represented on this Committee, is accomplished to a large degree through the Air Coordinating Committee.

My own experience on that has been limited. I could well understand that there would be from time to time considerable controversy as to the relative requirements of civil and military aircraft, especially in view, as Mr. Pyle has said, of the rapidly diminishing airspace.

In civil aviation alone we are dealing with an industry which has in passenger miles quadrupled in size within the last 10 years.

I believe that I could say as to the civil aviation industry that there is no more dynamic, expansive, and competitive industry which is being regulated by the Federal Government today than this industry which has quadrupled in size and passenger miles, and the complexities of its regulations have increased proportionately.

That has been substantially added to by the rapidly increasing speed of the aircraft which have been operating over these passenger miles particularly within the past year or 2 and certainly within the next 2 or 3 years.

I find difficulty myself in answering your question, but I would say there have been difficulties; yes.

And I would say that, to a large degree, those difficulties which relate to conflicts in airspace requirements have been adjusted by agreement within the Air Coordinating Committee.

I do not believe, to my knowledge, that the representatives of the Commerce Department or the Civil Aeronautics Board have ever come before the Congress or this committee, which I assume we should if we cannot arrive at a satisfactory agreement for civil aviation with the military within the framework of the Air Coordinating Committee. It would seem to me that it would be our obligation then, as an arm of the Congress and CAA as a part of the Commerce Department in the executive branch of the Government, to come to this committee and say we have been unable to adjust our differences with the military, and we are therefore asking for specific legislation to give us further authority.

To my knowledge or within my recollection, that has not happened to date, although I will say it has been a very difficult field.

The CHAIRMAN. You have just elaborated rather extensively on what I tried to point up very briefly, the need for some adjustment because of conditions which exist now which are so different from what they were in recent years.

Is it also not true that the Air Coordinating Committee, on any issue that is before it that affects civilian and military aviation, must have complete unanimity of thought and agreement before any change in anything can be made?

Mr. DURFEE. Yes, sir.

The CHAIRMAN. Any one person on that committee can prevent any needed change that might be suggested?

Mr. DURFEE. Yes, sir.

I might add that the Civil Aeronautics Board itself has frequently expressed to the Air Coordinating Committee that the Board as an agency of the Congress has specific, delegated responsibilities and that if the questions involved in determination by the Air Coordinating Committee involve policies which are within the field of the Board's delegated authority by the Congress we have refused to participate in the vote on such issues because of the fact that we have stated—and it is in the rules of the Board—that as a quasi-judicial agency the Board should not participate in such decision and thereby bind ourselves to further determinations of policy.

The CHAIRMAN. But it is a fact then that changes are brought about very slowly?

Mr. DURFEE. To answer your question, I would say that if it was a highly controversial issue I think it could be said safely that changes are made slowly and, I might add, deliberately.

The CHAIRMAN. With a lot of deliberation. TACAN is one of them.

Mr. DURFEE. Within the field of rulemaking by the Board I wish to emphasize that the Board has never surrendered its prerogatives to make rules as an agency of the Congress to the jurisdiction of the Air Coordinating Committee.

The CHAIRMAN. I am talking about the whole program. You and the CAA have got to work very closely together. We discussed that in connection with the investigation of the Grand Canyon accident.

I want to compliment the Board and the CAA in the fine way you have worked together beginning about that time.

You will remember when we were out there what was about to happen, and we decided it was a lot better to wait until we got back to Washington to iron out your dirty linen.

Mr. DURFEE. I remember.

The CHAIRMAN. And as a result of that breakfast out there that morning I think a very closely coordinated understanding was had. And I will say that I am very glad of that, and I have observed this working together.

But the point is for years a request had been on file with the CAA to establish an airway across Grand Canyon. And then when we came back here in September we were advised that it had finally been approved. In other words, it took a tragic accident such as that to get somebody to move and do something.

Now insofar as the Board is concerned—and this is in your field—the day before yesterday it was developed that a requested change had been considered with reference to testing areas since 1947. And it had been before the Board for consideration all this time.

This accident occurred on the 31st, and the next day the Board announced the procedures, which were in your release of February 1, 1957. In that release you explained what the rules were with reference to special test flights or authorizations. Now why was that release issued pointing up what the rules were so immediately after the accident?

Mr. DURFEE. Mr. Chairman, I believe that Mr. Pyle and I met and we felt that, as following every accident, the atmosphere was quite intense. Statements had been made in the press to the public of this country which left the inference that there were no rules whatever.

I believe that in the press up to that point, from the date of this accident until February 1, I cannot recall any reference to the fact that there were any existing rules whatever.

This left the implication that the Board and the CAA had been completely oblivious to this problem.

The purpose of that statement on Februray 1, I would say, was primarily to dispel any such idea without prejudice to the probability of facing up to the fact that we were going to have to go further than we had.

The CHAIRMAN. I get out of it another interpretation. Under the paragraph numbered 2 of that release you say:

> Such authorization specifically provides that flights, except takeoffs and landings (are) prohibited over thickly populated areas or large gatherings of people.

And this is the Board's announcement, talking about your rules. I gather from this that it was a recognized fact immediately that this rule was violated.

Mr. DURFEE. I believe we recognized the possibility of it. I can say today, Mr. Chairman, as I would have to say then, that I do not know where this collision occurred. I am satisfied, and Mr. Bakke and our Bureau of Safety Investigation have told me that they are satisfied that before we conclude this investigation we will be able to establish where this actual collision occurred.

There is sufficient information and there are witnesses and data from which we could arrive at that conclusion.

On the day that we dealt with that problem the investigation had been underway since Friday. I don't think we knew where the collision occurred, but I think we were facing up to the possibility that there might have been a violation of that rule.

The CHAIRMAN. But it is not sufficient to the people who live there or any other populated area, to say that we are within the rules when we are flying down the Washington Channel, and would interpret it as not over a heavily populated area.

If we are going to try to interpret, that you can fly over an airport and contend nobody lives on that airport, so we are within the rules, then you might as well have no rules.

You are not going to be operating a plane over mountains somewhere and have a collision of that kind where it is going to fall in Los Angeles.

It was testified a moment ago that the accident was within 5 miles probably of where the crash in the schoolyard took place. And, of course, I realize, with all due credit to the gentleman who made the statement, that he gave his opinion.

Nevertheless, to me, if you are going to be within 5 miles of the center of a heavily populated area, you might just as well be over it.

If they are going to try, both of them, whoever it is—the military or otherwise—to get by on the basis that they were over this little open space between the two populated areas, and, therefore, were within the rules, I think it is the duty of the Board—and the other members have so expressed themselves—to so find and take action accordingly.

Mr. DURFEE. I think that our subsequent release, after we had more information available, which came out on February 5, as to the specific regulations which we adopted—and I will admit we did it on an emergency basis without hearing——

The CHAIRMAN. Yes. That is what I want to compliment you on.

Mr. DURFEE. We adopted those rules.

The CHAIRMAN. We put them in the record.

Mr. DURFEE. I think the inference is inescapable that between the 1st of February and the 5th of February we recognized the fact that the rules as we had them were inadequate by the delegation of authority to the Administrator to designate test areas.

I am sure that the Administrator, in designating such test areas within which testing is to be done, will take into careful consideration the limitations of the airspace yet available and the fact that an impact may occur at 25,000 feet within a test area and still might result in fatalities within a populated area, and that, in designating the boundaries of the test area, considerable latitude should be allowed for the possibility of such an occurrence.

The CHAIRMAN. Well, I am afraid that is the trouble. We want to give entirely too much latitude because we are, as I have emphasized before as a layman, using altogether different kinds of equipment in the air now than we have ever known. And it took a tragic accident like this for such a rule to be issued by the Board when, as it was explained to us the day before yesterday, this very matter had been down there with the Board for 10 years. The Board started 10 years ago to consider it.

As I say, I want to assume as much of this responsibility as is ours. We are all, I think, in the same position. We are going to have to

change our attitude in order to make it safe for the people on the ground as well as in the air.

We have got a whole Pacific Ocean out there. I do not know why you are talking about airspace. I know you have got planes coming in, but nothing like those coming from this way. We have the whole Pacific Ocean out there all the way from here to Hawaii. What is the reason that could not be used for testing flights and so forth?

Mr. DURFEE. Mr. Chairman, as I understand it, much of the area along the California coast over the ocean has already been preempted by the military for various types of military operations—guided missiles and restricted military operations, the exact nature of which I do not know.

But I believe that we would have some maps that would be available which show that there is considerable of the ocean area along the California coast which has already been placed within the restricted areas.

Mr. BAKKE. Mr. Chairman, I wonder if I might add one thought to that.

The CHAIRMAN. Yes.

Mr. BAKKE. Our information—and it is not as complete and precise as we would like it at this moment—would indicate that on the average, on a day such as the day on which this accident occurred—there are approximately 4,600 military jet aircraft flying at high altitudes on what is known as on-top conditions. That is in the clear guided by "see and be seen." And that on a day such as this we might expect upward of 600 aircraft being flown in the Los Angeles area for test purposes.

They are using the airspace over the ocean and are using the many other bits of airspace which were shown to the committee this morning by the CAA.

There is precious little airspace in the Los Angeles area which is not being used very, very extensively by the kind of aircraft which were used here.

The CHAIRMAN. Can you not move to some other area?

Mr. BAKKE. Yes, sir; this is a distinct possibility.

I might mention that as recently as December of last year an action was taken in the airport use panel to cause the move of a flight-testing facility from another city—it so happened it was not in the Los Angeles area, but happened to have been in the St. Louis area—to cause the move of such a facility in order to reduce the possibilities of jeopardizing the safety of persons in that area.

The CHAIRMAN. Is the airspace over the desert preempted, too?

Mr. BAKKE. Very much of it, sir. Very much of it is used for experimental flying for such things as air-to-air gunnery and various other types of maneuvers which are generally regarded as even more hazardous than the type of flight tests that we are speaking of here—production test flights.

This, however, is something which clearly, as a result of this tragedy, requires very careful reexamination.

I merely wish to leave with the committee the thought that the agents of the Federal Government have been very, very active, and that it would be entirely erroneous to conclude that we have been inactive in this problem.

The CHAIRMAN. I would not want to leave that impression myself except to say—and I still content that definite decisions seem to take place after such accidents occur. That is a matter of record.

And I will say that in the Congress we have tried to be helpful. If there is any additional authority you need at any time, I think you will get all of the help you want out of the Congress to meet any problems.

Mr. Moss had a question.

Mr. MOSS. As to the great amount of airspace which has been preempted by the military, is it being efficiently utilized?

We have had the picture in hearings before the Interior Committee on the requests of the military for withdrawal of public lands, and I assume when they withdraw the public lands they frequently withdraw the airspace.

It has been pretty generally established that there is not efficient utilization.

Has the Board determined in these vast withdrawals of airspace that they are in fact necessary and whether there is efficient utilization of that space?

Mr. DURFEE. I do not believe, as far as I know, that the Board has, when the military withdraws airspace for restricted military purposes, ever inquired into that subject.

Mr. MOSS. Is your concurrence required?

Mr. DURFEE. I think under the act of Congress the Board does have some general authority over all of the airspace. I think by the fact that we have rule 60, which prohibits both military and civil aircraft from engaging in unusual maneuvers over densely populated areas, indicates the fact that the Board has assumed that it does have some authority; yes, Mr. Congressman.

Mr. MOSS. Has it assumed that authority in determining whether there is justification for the withdrawal of vast areas of airspace for exclusive military use?

Mr. DURFEE. The designation of withdrawal of airspace by the military is accomplished by the Airspace Committee of the Air Coordinating Committee with the Defense Establishment, the CAB, the CAA, and Commerce agreeing upon the withdrawal.

I would say frequently, Mr. Congressman, that the national security or the national defense might require it.

I think if the Defense Establishment says that it is essential for us: "We have a program in this area and we require so much airspace that is essential for us in testing new types of aircraft or aircraft gunnery or guided missiles"—I have not sat on the Committee, but whether the Committee has gone into whether it is absolutely essential or whether it has accepted the representations of the Defense Establishment I do not know.

Mr. MOSS. What is the role of the CAB in determining whether or not a withdrawal will be approved?

Mr. DURFEE. Our role is, in coordination with the CAA and the Defense Establishment as a part of the Air Coordinating Committee, in arriving at an eventual unanimous decision as to whether or not these areas are to be designated as restricted areas within the airspace.

Mr. MOSS. Then it boils down to pretty much a determination by the military authorities, and that determination once made is rarely questioned too closely.

The CHAIRMAN. I might say that is a matter under very careful study now.

It is a field in which there seems to be a division of opinion as to just who does exercise the authority. This is a matter, I understand, that is being given a great deal of attention.

It is our expectation, I might say, to go into it because, carrying out the program we started last year, this question is a very important one.

By the maps you can see how it has been preempted, how much the military has gone into in preempting the airspace. It is almost incredible.

Mr. MOSS. I was interested, Mr. Chairman, because I am convinced by the testimony before the Interior Committee that it shows there is an inclination on occasion for the military to grab much more than it needs or than it can efficiently utilize.

Mr. DURFEE. It is my understanding that insofar as the request of the military is substantiated by the statement that their request for restriction of airspace is dictated by requirements of national defense or security, I do not believe that the civilian agencies have ever attempted to go into that to any extent. I think they have accepted to a very large degree the representations of the military in that regard.

Mr. MOSS. With the great competition for airspace do you not think it might perhaps require closer civilian attention?

Mr. DURFEE. Yes, sir.

Mr. MOSS. Thank you, Mr. Chairman.

The CHAIRMAN. I have one other question which does relate to the Northeast accident in New York. It was brought up the day before yesterday, and, as a matter of policy, this should be explained: What factors does the Board take into consideration in issuing an airline a certificate of convenience and necessity to serve a given route?

Mr. DURFEE. May I ask whether you refer to factors affecting safety, the capacity of the management to conduct a safe operation, or the overall factors involved?

The CHAIRMAN. I am asking what factors are considered, which includes both.

Mr. DURFEE. I have the decision in the Northeast case, including the decision of the Board and the dissent opinion. That is gone into at length there. I would say principally the reasons for the decision of the majority in the selection of Northeast were that——

The CHAIRMAN. I did not necessarily ask you for the reasons on which you decided. I wanted to know as a matter of policy what factors the Board considers in issuing a certificate to anyone for any route.

Mr. DURFEE. The factors generally considered are, first, the directive of the Congress, the general directive that we foster and develop an adequate system of transportation.

The CHAIRMAN. That is the basic policy.

Mr. DURFEE. Another factor is the stress that the Congress has placed upon the Board to encourage competition in conformity with the development of a sound system.

The CHAIRMAN. In carrying out that policy then, what factors do you consider when you issue a particular certificate?

Do you consider equipment?

Mr. DURFEE. Yes, sir.

The CHAIRMAN. The availability of equipment to the company?

Mr. DURFEE. Yes, sir.

The CHAIRMAN. The capability of the management?

Mr. DURFEE. Yes, sir.

The CHAIRMAN. The financial responsibility?

Mr. DURFEE. Yes, sir.

The CHAIRMAN. Do you require them to tell you what equipment they have available for such service at that particular time?

Mr. DURFEE. Yes, sir.

The CHAIRMAN. Then all such matters that are necessary must be presented to the Board before you grant or issue any certificate?

Mr. DURFEE. The matters are primarily presented to the examiner who makes a decision. After the examiner has made his decision the procedure is that the parties to the proceeding may file exceptions to his decision. Briefs are then submitted in support of the exceptions. and the Board itself hears oral argument by the parties on the exceptions in the briefs to the examiner's decision.

The scope of the inquiry as to the factors involved, therefore, rests primarily within the discretion of the examiner who is delegated to the hearing.

But as to the factors which I have mentioned, he conducts the hearing in accordance with the mandates of the act as to the factors which the Board is to consider.

The CHAIRMAN. But the Board does review that action, does it not?

Mr. DURFEE. Yes, sir.

The CHAIRMAN. Now in this particular instance concerning Northeast, whom you have recently certificated for the New York-Miami, Fla., route, did you find that Northeast had adequately met all of those requirements?

Mr. DURFEE. Yes, sir.

The CHAIRMAN. There were developed here and discussed some serious questions as to whether Northeast actually had the equipment that it should have to assume this responsibility.

Is there any doubt in the minds of the Board as to whether or not Northeast did have the necessary required equipment?

Mr. DURFEE. At the time of the Board's decision Northeast did not have the equipment that would be required to operate this route to Florida.

In the testimony before the examiner the testimony was that it was the intention of the management to operate this New York-to-Miami route with DC–6B equipment. And as of the date of the decision of the Board, Northeast did not have any DC–6B equipment, and, to that date, had never operated any DC–6B equipment.

The information that I have as to the availability of the aircraft that was in the record, as to the delivery of DC–6B's was this:

I believe the aircraft in question here was a leased aircraft. And I might add that that is a very common practice among all air carriers, to interchange aircraft by lease for their most expeditious use.

As of the date of the decision I do not believe that they had any DC–6B's because until they got their certificate of convenience and necessity I do not think that they felt that they wanted to obligate

themselves to the purchase of equipment for which they had no use until they received an assurance that they were going to get a certificate, which they did not get until the Board's decision.

I am advised that the record as of now is that they have 1 DC–6B and they have orders for delivery of DC–6B's, 1 on February 22, 1 on March 16, 1 on May 29, 1 on July 19, 1 on July 24, 1 on August 26, 1 on September 20, and 1 on September 30, and 3 Brittanias, a British aircraft, 4-engine turbo-prop, I believe, with 3 in October and 2 in November.

The CHAIRMAN. But at the present time was this the only DC–6 that they had?

Mr. DURFEE. They owned 1 DC–6 at the present time.

The aircraft in question, as I understand it, that was involved in this accident was a leased aircraft, a DC–6B which had been leased from Flying Tiger.

The CHAIRMAN. But was it the only aircraft of this type that the company had to operate?

Mr. DURFEE. I believe that at that time they had leased two. There were two. They had two DC–6B's at the time of this accident.

The CHAIRMAN. And they had been operating under that authority since January 9. Is that right?

Mr. DURFEE. Yes, sir.

The CHAIRMAN. How many flights a day?

Mr. DURFEE. Apparently we do not have that information available. We can get it and check it.

The CHAIRMAN. I should think that it would be pretty important information because if you are trying to operate a route like that with the aircraft continuously in operation certainly there was not much time to keep it up, the time the plane should have had.

I suggest that that be given very, very close consideration during the course of your investigation.

Mr. DEROUNIAN. Mr. Chairman, off the record.

(Discussion off the record.)

The CHAIRMAN. I think I have developed all that I would like to at this time, which to me were the things that were left hanging in the air the other day when we adjourned. But if any member would like to ask any questions, go ahead.

Mr. DEROUNIAN. If I could get this into the record, that would serve my purpose.

I do not intend for Mr. Durfee to know the answers to these questions because the investigation is in progress at the moment. And may I say about Mr. Durfee that I feel he is trying to do a sensible, conscientious job, and I am sure when this investigation is complete there will be a thorough decision one way or the other.

Mr. DURFEE. Mr. Derounian, could I have just a moment to summarize, I think, what the committee was concerned with.

This was a highly contested proceeding. This is probably the most valuable air route in the United States, the New York-Miami route. In terms of total passenger miles it is the richest route in the United States.

It was contested for by eight applicant carriers. The oral argument took 5 days.

Every issue that could have been raised as to the capacity of Northeast Airlines, of the management to operate this line, was thoroughly

explored by both the competing airlines and the Bureau of Air Operations of our Board and the examiner. No stone was left unturned to demonstrate whether or not Northeast had the capacity to manage this airline.

Some questions were raised as to the capacity of Northeast's management to enter into such a highly competitive and rich market with the limited experience this airline had had.

Questions were raised as to capacity of the management in that regard. But at no time in the record of this proceeding did any party to this proceeding raise any issue as to the capacity of Northeast Airlines to operate this route safely. That issue was never raised.

And, as Mr. Pyle has stated, the record of this airline for over 20 years, without a single passenger fatality, was one of the finest airline records for safety in the entire United States.

That was the premise upon which the Board, insofar as any considerations of safety were concerned, felt justified in awarding this route to Northeast.

The CHAIRMAN. That being true then, I think you might, from your investigation, go into the question of their efforts to get the service underway before they actually got ready with the equipment and the personnel they should have had.

I think there would be the crux of it.

Mr. DEROUNIAN. Mr. Chairman, this morning I received a call from my New York office informing me that a witness who had seen the proceedings prior to the accident and who has some information about the Northeast accident wanted me to call him.

I called him long distance and I had a very heart-rending and protracted conversation.

These events he stated as follows, and he told me he would be willing to testify if he were called as to what he told me. This is substantially what he says as to the events:

He said he arrived with his family, who were passengers on that plane, at about 2:15 at LaGuardia that afternoon. And the plane stayed at gate 11 for about 25 minutes. Thereafter the maintenance men swept snow off the wings for about half an hour, and at about 3:15 an employee told the people waiting to see their passengers and families off that they were waiting for another plane to arrive from Boston to replace the plane in which these passengers were at the moment.

Then at 4 p. m. this witness' son-in-law demanded to take his wife and children off the plane. They told him that the plane would leave within the next few minutes. And this was still at gate 11 at 4 o'clock.

At about 4:45 the plane was removed to a hangar, as it was explained to them, "To repair the ignition on a motor."

The passengers were getting panicky inside. And, mind you, the passengers are in this plane for this whole period I am talking about.

At 5:25 the son-in-law, frantic again, wanted to get his family off the plane.

An agent of Northeast told him that the plane "is in flight."

With that assurance, this gentleman left the airport, and the next he knew about it from his car radio, the plane had crashed.

While this plane was on the runway ready to take off within a half hour from the time it actually did, the lights inside the plane flickered on and off while waiting to take off.

As the plane left the ground—and this passenger was on the right side near the window—the plane shuddered as it left the ground.

Some seconds later two motors on the right side went dead.

The plane lurched to the left and it crashed.

Now a witness that evening on Walter Kronkite's television program—and this fellow's son-in-law was at the scene—was told by another passenger named Benson, who had been sitting on the left side, that Benson himself saw at the end of the runway at LaGuardia Field this sign: "If You Can See This Sign At The End of The Runway You Are As Good As Dead."

Whether that sign exists or not I don't know. But this is the information he gave me. He said he would be willing to testify. And when his daughter is well enough—she is still under shock and lost a little girl there—she will be willing to testify.

This brings up another problem, the problem of these tourist flights where you travel five abreast.

I received a letter this week from River Forest, Ill., from someone who had been on a major airline flight where—and I am quoting:

> Eighty-eight passengers and 2 stewardesses were packed in the cabin of a first-class flight with the seats 5 abreast and with insufficient foot room between the rows in which even to stand. I complained that should a landing at sea become necessary it would be impossible for 88 untrained and possibly panicky passengers to don their life jackets and prepare properly for such an emergency.

Later on in the same letter it says:

> According to the newspaper accounts, there were many flames in and around the Northeast plane after it crashed on Rikers Island. I submit that the following questions demand answers from responsible Government and airline officials:
>
> Did the 20 fatalities result from the fire? And, if so, how many of those 20 could have been saved if egress from the plane had been easier?

In the Wednesday, February 6 edition of News Day, which is a newspaper published in my district, there is a story by Bill Butler, datelined New York, which states:

> The 20 persons who died when a Miami-bound airliner crashed on Rikers Island last Friday survived the impact of the crash but were overcome by smoke and flames, the city medical examiner reported yesterday.
>
> Dr. Milton Halpern said that if the 20 victims had been able to escape from the wreck and in time they, too, would have survived.

The witness who talked to me on the phone today told me that in trying to get out of the plane his daughter threw one of the children out of the window. The baby was saved, but the 3-year-old child, whom she had by the hand trying to get out, was snatched away by the push and tug of the panicky passengers when they crashed.

Mr. Chairman, these are things that I hope will be helpful to the CAB in investigating this accident and in determining who caused and what caused it, and in revising its rules and regulations to prevent reasonably in the future any such further happening.

I give this merely for the information of the committee.

Mr. Moss (presiding). Are there any further questions?

Mr. DURFEE. Mr. Derounian, I assure you your statement has been helpful, and that we will ask the gentleman from the Bureau of Safety

Investigation who is in charge of the panel to contact your office and to obtain access to the names of the witnesses and information which you have so that it will be fully developed in the hearing.

Mr. DEUROUNIAN. I know that you have not had a chance to question these people because they have been in the hospital and you have got to develop these things. But I thought these might give you some leads.

Mr. Moss. Mr. Derounian, do you have any further questions?

Mr. DEROUNIAN. No.

Mr. Moss. Mr. Loser?

Mr. LOSER. I have no questions.

Mr. Moss. Mr. Avery?

Mr. AVERY. At this late hour, Mr. Chairman, I do not think we need to interrogate much further except that I would like to ask one factual question.

When the Board issues a certificate of convenience and necessity does that state in the certificate the number of flights that will be available within a 24-hour period? Or does it just issue the general authority and the airlines can build such structure into that authority as they have the facilities for and can get clearance from the local airport to land and take off for?

Mr. DURFEE. That latter is true, Mr. Avery.

The certificate itself does not restrict the frequency of the scheduling.

Mr. AVERY. Thank you.

Mr. DURFEE. The certificate itself gives the airline adequate opportunity to exercise what competitive impact it can make on the operation of that certificate.

Mr. AVERY. When it gets to the actual number of flights, assuming it had the equipment and other facilities, it would then be up to the local control tower or the authority back of the tower to authorize them to add an additional flight or bring in an additional flight from time to time?

Somebody would have to have the authority, it would seem to me, especially at an airport like LaGuardia or out at National. They just could not fly in with a flight and say we have got two extras coming in today. Or can they?

Mr. BAKKE. Yes, sir, I believe they could.

The air carrier is free to add schedules of flights. That is so far as technical or safety restrictions are concerned.

However, if the number of schedules at any given time exceed the capacity of the airport to accept or permit to take off, then obviously the traffic will have to be held at outlying points or on the runway, depending on whether it is a landing or takeoff.

It, therefore, becomes a matter of economic necessity for the air carrier to schedule his arrivals and departures so as not to create the necessity for long periods of holding on taxiways or in the air.

I do not believe that in any respect a safety problem would be created.

The Administrator, whose agents control the flow of traffic into and out of the airport, has ample authority to restrict the flow of traffic so as to insure that safety is not jeopardized.

Mr. AVERY. Well, is there a priority as far as takeoffs and landings are concerned comparable with the date of issue of certificates of necessity or not?

I mean supposing TWA had one of 5 years' standing, and then you would issue one to Northeast. As far as takeoffs are concerned, particularly, does that enter into it at all?

Mr. BAKKE. Not in the least.

All air traffic clearances are rendered on a first-come-first-served basis.

Mr. AVERY. Thank you.

Mr. MOSS. Mr. Alger?

Mr. ALGER. Mr. Durfee, I have enjoyed listening to this very much, and I intend to be here whenever this committee meets, and to listen and participate as I can.

I have many questions because I am very much interested in this subject. But, both because of the time and also my own inexperience—because I intend to learn a great deal more about this subject, and I might be belaboring the obvious—I would like to pass.

However, I do want to say, since the time is late, Mr. Chairman, that I would like to ask questions later when they have this information from their investigation which is now only part way through. Maybe I can take them up at that time.

Mr. MOSS. The committee thanks you for your appearance here, Mr. Durfee.

We will recess now until 2 o'clock, at which time Mr. Pyle will return to the stand.

(Whereupon, at 1:10 p. m., the committee was recessed, to be reconvened at 2 p. m., this same day.)

AFTERNOON SESSION

Mr. MOSS (presiding). The committee will be in order.

At the time Mr. Pyle left the stand this morning, Mr. Hale was directing some questions to him. Mr. Hale may now continue his line of questions.

**STATEMENT OF JAMES T. PYLE, ACTING ADMINISTRATOR, CIVIL AERONAUTICS ADMINISTRATION, WASHINGTON, D. C., ACCOMPANIED BY ROBERT P. BOYLE, GENERAL COUNSEL; WILLIAM B. DAVIS, DIRECTOR, OFFICE OF FLIGHT OPERATIONS AND MAINTENANCE, CIVIL AERONAUTICS ADMINISTRATION; ROBERT E. DAKE, CHIEF, GENERAL SAFETY DIVISION, CIVIL AERONAUTICS ADMINISTRATION, REGION IV, LOS ANGELES, CALIF.; SAMUEL D. HALEY, AVIATION SAFETY AGENT, AIR CARRIER DIVISION, CIVIL AERONAUTICS ADMINISTRATION, BOSTON, MASS.; EVERETT W. KEELER, AVIATION SAFETY AGENT, CIVIL AERONAUTICS ADMINISTRATION; AND DAVID D. THOMAS, DIRECTOR, OFFICE OF AIR TRAFFIC CONTROL, CIVIL AERONAUTICS ADMINISTRATION, WASHINGTON, D. C.—Resumed**

Mr. HALE. I want to ask you 2 or 3 things, Mr. Pyle. Unfortunately, I am not a physicist. I trust you are. Is it not a fact that, if

2 planes traveling anywhere from 300 to 500 miles an hour collide 5 miles above the earth's surface, the wreckage will disperse itself or be dispersed over a fairly wide area? Is that right?

Mr. PYLE. That is correct. We believe that it is possible that this very thing happened in the case of the accident in California.

Mr. HALE. The amount of dispersion would no doubt depend on various factors, like the speed of the planes, the direction of wind, wind velocity, and so on; is that right?

Mr. PYLE. That is correct, sir.

Mr. HALE. Of course planes colliding at a lower altitude would produce a lesser area of wreckage dispersion; is that correct?

Mr. PYLE. That is correct.

Mr. HALE. In the Grand Canyon, as I remember, the wreckage of the 2 planes was about a mile or 2 miles apart?

Mr. PYLE. I think it was 6 miles apart.

Mr. HALE. As much as that in the Grand Canyon?

Mr. PYLE. The Grand Canyon? It was about 2 miles. You are correct, Mr. Hale.

Mr. HALE. How much?

Mr. PYLE. About 2 miles. They came down more or less together.

Mr. HALE. In this collision, they were about 6 miles apart?

Mr. PYLE. That is correct, as I understand it.

Mr. HALE. Indicating, I suppose, that the two planes continued in motion for some little time after the crash?

Mr. PYLE. Subject to correction as revealed by the investigation that is now underway by the CAB, I understand that there was a 7-foot piece of one of the wings of the DC–7 that was found only about 1 mile from the jet. The balance of the transport DC–7 was about 6 miles away. As a result, it is probable that the DC–7 actually had a trajectory of a considerable distance.

Mr. HALE. There is no doubt whatever about the fact that much of the debris fell in a thickly settled area. There is doubt as to exactly—and I suppose the doubt will never be completely resolved—the point at which the collision occurred. We are never going to be able to tell mathematically where the collision occurred, but you think it may have occurred over mountains, in country that was not thickly settled.

The point I am coming to, which is sufficiently obvious, is that a rule which would have protected the subjacent areas in times past is not good enough to protect such areas with planes traveling at high altitudes and high speeds. All of your thinking on this subject has to be revised if you are going to keep the population safe today.

As far as that accident is concerned, there is no question, I presume, as far as anybody knows, about the airworthiness of planes.

Mr. PYLE. No, sir.

Mr. HALE. That accident, you would say, would you not, was caused entirely, or almost entirely, by the negligence of one or both pilots? Is that a fair statement or not?

Mr. PYLE. Mr. Hale, I think in fairness to the companies and the pilots, I would not be in a position to comment on that point until after the accident had taken place. In other words, we do get into problems of legal responsibility of the companies, and at this point I do not think it would be fair of me to answer your question, being very honest with you.

Mr. HALE. I am not trying to get you to place blame as between one pilot or another. Of course I do not want you to anticipate the outcome of any legal proceedings which might be brought. I would assume that two planes would not come together in midair if both pilots were completely vigilant. Is that a fair assumption?

Mr. PYLE. That is a fair assumption, under the weather conditions which apparently existed.

Mr. HALE. That is what I mean. You had apparently ideal weather, with virtually unlimited visibility. The natural assumption would be that the pilots were so intent on their maneuvers, whether usual or unusual, that they were not alert to dangers which existed outside the planes; is that a fair statement?

Mr. PYLE. I think this is a fair assumption but we will have to see what the actual facts of the investigation would bring out. I am not entirely familiar, for instance, with the testing procedure that the military aircraft was undergoing in checking its radar equipment, which I believe was the purpose of the test.

Mr. HALE. Coming to the Northeast accident, that would seem to be very largely a matter of airworthiness, would it not?

Mr. PYLE. I think it would depend—no, I do not think it is a matter of airworthiness, Mr. Hale, in that the aircraft was undoubtedly completely airworthy. Again, we do not have all the facts. This will have to be brought out by the investigation. There is nothing that would lead me to believe that the aircraft was not 100 percent airworthy.

Mr. HALE. Of course it is conceivable that it might be airworthy under normal conditions and not airworthy under the ice and weather conditions that existed. Is that a fair statement?

Mr. DAVIS. Sir, the airworthiness of an aircraft is predicated on its structural integrity and performance ability. I suppose you could say that if an aircraft had too much snow on the wings so that it could not take off, it would be unairworthy insofar as its inability to perform as it is supposed to. But it would be an outside source, instead of the aircraft itself.

Mr. HALE. I used to practice admiralty law and I know something about the court decisions on what constitutes seaworthiness and unseaworthiness, and I assume the law is or should be just about the same about airworthiness.

Something was said by Mr. Wolverton in questioning about the length of time of the turnaround of the plane coming in from Miami and returning in 1¾ hours. Is as short a turnaround as that usual?

Mr. PYLE. The answer, Mr. Hale, is that in many instances they are turned around much more quickly and with complete safety. There is no problem of safety in that type of turnaround.

Mr. HALE. Actually, of course, it made no difference whether the plane was turning around to go back to Miami or taking off again to proceed north or east or west or in any other direction.

Mr. PYLE. That is correct.

Mr. HALE. Certainly, fueling stops are made by planes every day, taking only 40 minutes, or something like that.

Mr. PYLE. I believe the procedure with a DC–6 is usually 30 minutes, to fuel, make crew change, replenish, provided there is nothing that shows up as a discrepancy.

Mr. HALE. I have done quite a lot of flying myself, and I know that for a DC–6 a fueling stop of 40 minutes is certainly routine.

Mr. PYLE. Yes. That is correct, sir.

Mr. HALE. I believe that is all I want to ask right now. Thank you very much.

The CHAIRMAN. Mr. Macdonald?

Mr. MACDONALD. Mr. Administrator, there has been a lot of testimony in this hearing which would lead somebody who was not following the hearing closely to think that this was a very unusual accident. Would you state whether you feel this was an unusual type of accident?

Mr. PYLE. Mr. Macdonald, this is a little difficult question to answer in this respect: We do not have all the facts. I assume you are referring to Northeast?

Mr. MACDONALD. Yes.

Mr. PYLE. We do not have all the facts. It would appear to me at the moment that there are certainly some aspects of this accident about which we will have to learn a lot more. This may indicate that it was an unusual accident or it was not. I am afraid I just cannot answer your question.

Mr. MACDONALD. Do you happen to know how many accidents there were on certificated airlines during the past year?

Mr. PYLE. If I am correct, there were four accidents in the calendar year 1956. Those are fatal accidents, Mr. Macdonald.

Mr. MACDONALD. How many accidents were there? Then we can break them down into nonfatal and fatal after we establish the first number.

Mr. PYLE. We may have to supply you with those figures. I think we will probably have to supply you with that figure.

Mr. MACDONALD. In any event, you said there were four fatal accidents or accidents that resulted in fatalities. How many lines were involved in the four accidents?

Mr. PYLE. I have a list of it somewhere, Mr. Macdonald, because I thought this question might come up.

The CHAIRMAN. Could you give the approximate number and then correct it?

Mr. PYLE. Subject to correction on the record which we will give you, there was a TWA 404, at Pittsburgh; a Northwest, B–377, at Seattle, and the TWA and United accident at the Grand Canyon. There was a gentleman who stepped out of a DC–3 on Piedmont Airlines. I think those are the four accidents.

There was also the Pan-American accident en route from Honolulu to, I believe, Los Angeles or San Francisco, in which everybody got out.

Mr. HALE. There were no deaths there.

Mr. PYLE. No deaths on that one.

Mr. MACDONALD. As far as your investigations can reveal so far, there were no violations of any regulations of the CAB that you found in this Northeast accident, is that correct?

Mr. PYLE. Up to the present stage, there have been no violations found against the airline or its personnel.

Mr. MACDONALD. It is true, is it not, that other lines took off from the same field, under the same weather conditions, both preceding the accident and following the accident?

Mr. PYLE. That is correct.

Mr. MACDONALD. Therefore, if the pilot of Northeast made a human error in judgment, the other pilots must have made the same error in judgment? I am now framing this in reference to the weather.

Mr. PYLE. I think that is a fair statement.

Mr. MACDONALD. And, therefore, if his judgment concerning the weather was sound, it must have been some sort of operational casualty that would cause this accident?

Mr. PYLE. I think this is probably a fair assumption. Again, we will have to await the exhaustive report that will be made and furnished the committee.

Mr. MACDONALD. But the pilot himself had been very concerned about the possibility of an operational failure caused by the weather and had delayed for a number of hours until the plane, in his opinion, could get into proper operational shape?

Mr. PYLE. That is correct.

Mr. MACDONALD. How long did he actually wait and inconvenience these people?

Mr. PYLE. If I recall correctly, subject to correction, his scheduled takeoff was 2:45. Whether the passengers were loaded at that time or shortly thereafter, I am not entirely aware. His final takeoff run was started at 6:01.

So it was a period of 3 hours and 16 minutes from the scheduled time until he started his takeoff run.

Mr. MACDONALD. I ask this question, which is just relative to this problem. I am asking your opinion of whether or not a board of people or a single individual, correlating necessary information, should have the authority to finally O. K. or not to O. K. the flying of any given air route. What is your opinion about that, or would you care to comment on it?

Mr. PYLE. Could I paraphrase your question to see if I get it correctly, Mr. Macdonald? As I understood it, you asked me if a board of people or a single individual should be in a position to ascertain whether or not it is proper to fly a route?

Mr. MACDONALD. A given route on any given day. We are not getting into the problem of which airline is to fly a route, I hope. On any given day, do you feel that there should be established one individual at every airport, to pass on the pilot's judgment in taking off for a certain destination?

Mr. PYLE. I think the answer to that, Mr. Macdonald, is that I think the system under which we now operate is the proper system. Namely, that the airline, after exhaustive check by the Government through its agency, the CAA, ascertains that the personnel and the airline, equipment and its management, are competent to operate. Then I say they should take the responsibility for that kind of decision. I do not believe this is a function that can properly be assumed by the Government, except within certain criteria, which are established by the Government itself.

Mr. MACDONALD. I understand the minimum approach to the problem is that the Government, as I understand it, says that below certain minimums, nobody can fly, is that correct?

Mr. PYLE. That is correct. Certain minimums are established for each airport, each company, each type of equipment at each airport, actually.

Mr. MACDONALD. Would you care to comment as to the actual fact of the matter that on a given run, and I will take Boston to Washington for example, that on any given Sunday evening when the traffic is fairly heavy, one airline will be flying the route and another airline will not be? I never have been able to understand that. I sometimes get aboard one of the lines that is flying with some apprehension thinking of why two similarly trained persons feel that the route should not be flown, and another airline pilot feels that it should. I sometimes wonder if I am flipping a coin and basing my judgment on one pilot's judgment as opposed to the others.

Mr. PYLE. I would like Mr. Davis to comment on this, but from my standpoint, I feel "No, there is no risk." In the first place, I feel that under present conditions of operations, there are sufficient safety margins that are imposed by our own inspectors to insure that they are not calling it on too fine a line. Certain training programs are perhaps a little more extensive than others. Certain airlines enjoy lower minimums than others, due to the fact of their training programs, or the equipment aboard the airplane. There are many factors that enter into the decision. It may be that the basic operations policies are slightly different. These enter into the factors. I think Mr. Davis might want to add to that.

Mr. DAVIS. No, I think you covered it very well, Mr. Pyle.

Mr. MACDONALD. I have just a final question concerning the equipment. I understand it was leased from the Flying Tigers?

Mr. PYLE. That is correct.

Mr. MACDONALD. The equipment that had been leased from the Flying Tigers had been flying, as I understand it, the Atlantic run, from the United States to various points in Europe?

Mr. PYLE. I believe it has been so reported, but I am not in a position to answer whether or not that is the case.

Mr. MACDONALD. Do you happen to know how many hours these engines had on them.

Mr. PYLE. We have our maintenance inspector at Northeast Airlines. He might be able to answer that question.

Mr. Keeler?

Mr. KEELER. My name is Everett W. Keeler. I am maintenance agent, assigned to Northeast Airlines operations. Last night I obtained these figures on a telephone call to New York to determine the limitations for the overhaul of the engines, propellers, aircraft, and the times on the engines and propellers since overhaul at the time of the accident. The engine limitations they were allowed on the engine overhauls were 1,520 hours. The No. 1 engine had 1,378; No. 2 engine had 1,049; No. 3 engine, 930; and No. 4 engine, 631. That is time since overhaul.

Concerning the total time on these engines, No. 1 was 6,638, No. 2 was 5,152, No. 3 was 5,380, and No. 4 was 5,665.

The total aircraft time was 8,317 hours, and the time since the last major inspection on the aircraft and engines was 50.9 hours.

Mr. MACDONALD. Fifty hours?

Mr. KEELER. 50.9 since the last periodic inspection. That is what we call a major inspection.

Mr. MACDONALD. You are not talking about a check?

Mr. KEELER. No. I am talking about a turn around check or a daily check.

Mr. MACDONALD. Do you happen to know whether or not these engines with this time on them had been checked at the turn around in Miami?

Mr. KEELER. On the overnight in Miami, they do what they call a preflight or a daily inspection.

Mr. MACDONALD. What does that consist of?

Mr. KEELER. It is an exterior visual examination of the condition of the cylinders and attachments to the cases.

Mr. MACDONALD. I cannot hear you.

Mr. KEELER. A visual examination, the exhaust stacks, intake stacks, exterior of the cylinders. It is not an inspection where you tear a lot off to get into an engine.

Mr. MACDONALD. Is that under CAB regulation or is it company policy, or both, if you happen to know?

Mr. KEELER. Well, it is a little bit of both. They have to have an inspection once every 24 hours and it is called a daily inspection. When the aircraft got up to LaGuardia, they performed what is called a turnaround inspection. That is not as intensive as the daily inspections and it includes the correction of any complaints that are made on the incoming trip.

Mr. MACDONALD. Had there been any complaints made on this incoming trip?

Mr. KEELER. I could not tell you, because I have not seen the records.

Mr. MACDONALD. It was the same crew?

Mr. KEELER. It was the same crew.

Mr. MACDONALD. They would certainly have knowledge if there were complaints?

Mr. KEELER. I would assume so. In addition to that, the Flying Tiger system, which Northeast was using, includes the use of what is called maintenance release, which the maintenance personnel have to sign that the airplane is airworthy and the pilot has to sign, or the flight engineer, accepting that airplane.

Mr. MACDONALD. Was this done?

Mr. KEELER. I have not seen the record, but I assume it was. The CAB took all of the records, so I have not had a chance to examine them.

Mr. MACDONALD. In other words, you think that these engines had been inspected as they legally should have been and had been inspected twice within a period of 24 hours?

Mr. KEELER. Yes; that is right.

Mr. MACDONALD. Thank you. I have no further questions.

The CHAIRMAN. Mr. Younger?

Mr. YOUNGER. Mr. Pyle, this question may have been asked before. Who has the authority to close a field?

Mr. PYLE. To actually close the operation of the field?

Mr. YOUNGER. Yes. In other words, we hear every once in a while that the Washington Airport is closed. Who has the authority to close an airfield for incoming and outgoing planes?

Mr. PYLE. The airport can be closed by the airport management under any condition, no matter what type of weather. If the weather goes below all operating minimums, this automatically closes the field because no one can take off or land. I do not know whether this is a satisfactory answer to your question, but I think this is how it works.

The CHAIRMAN. Can you explain it this way: Your regulations require that the field be closed in certain minimum weather; is that true?

Mr. PYLE. Yes; that is correct, Mr. Chairman.

The CHAIRMAN. And that is determined by the weather conditions?

Mr. PYLE. That was what I was trying to say. Maybe I did not state it very well.

There are other circumstances, too. For instance, if there is an accident on the runway, a plane is on the runway and makes the runway unusable, that makes the runway closed, and maybe the whole airport will be closed by the manager, until the situation is corrected, whatever it may be.

Mr. YOUNGER. The records will show that two people authorized the flight. One is the dispatcher, and the other one is the pilot. They are the ones who are responsible for sending the plane into the air. Is that correct?

Mr. PYLE. That is correct. I would like to make one point. I think perhaps when you say "Your dispatcher", I should say this is the airline dispatcher.

Mr. YOUNGER. I did not say your. I said the airline dispatcher and the pilot.

Mr. PYLE. That is correct.

Mr. YOUNGER. And the dispatcher is in the employ of the company?

Mr. PYLE. That is correct.

Mr. YOUNGER. They have the sole responsibility of sending that plane into the air?

Mr. PYLE. That is correct.

Mr. YOUNGER. If even the minimum requirements are not met, in a weather way, they could still take the plane off, could they not?

Mr. PYLE. If they should operate under the prescribed minimums, we would be on their necks right away.

Mr. YOUNGER. I know you would be on their necks. I am not talking about what would happen if they did it. I am just trying to ask do they have that authority, or would somebody above them close the field? That is what I am trying to get at. It looks to me as though somebody, even in the tower, would determine when the minimum weather conditions exist. Who determines when the minimum weather conditions exist? That is what I am trying to get at.

Mr. PYLE. Mr. Younger, I would point out, and then I would like our general counsel perhaps, to see if he can answer more properly than can I this question, there are all kinds of weather minimums. This is the problem that we have. In other words, Airline A can operate with a 300-foot ceiling and half-mile visibility. Airline B has been authorized to operate 200 and a quarter. As a result, unless you would want to come down to the minimum authorized at that field and then say at that point it is closed—is that the point you are making, the lowest minimum at the field that would then authorize the closing of the field?

It is closed automatically. I do not believe we have a problem there. The moment that anybody trys to take off below that minimum, he is in violation.

Mr. YOUNGER. Sure. There is no question but what a person would be in violation. The dispatcher may be in violation or the pilot

may be in violation. I think in general they are scrutinizing their responsibilities as closely as they can. I do not mean to cast any reflection at all on any pilot or any dispatcher. I think that they would probably be more willing and more able to determine whether that ship should go in the air than any Government agents there on the field. That is my personal feeling. They have more at stake. They have their future jobs and everything else at stake, and the pilot, in addition, his own life. I do not subscribe to this other theory at all. But what I am trying to get at is knowing that they have that responsibility and can exercise it, there is nothing above them. From what you say different planes can operate at different minimums.

Mr. PYLE. That is correct, sir.

Mr. YOUNGER. So it is up to each dispatcher and to each pilot to determine those minimums for their particular operating planes?

Mr. PYLE. That is correct, sir.

Mr. YOUNGER. That gentleman shook his head.

Mr. BOYLE. The minimums that are referred to are prescribed by the CAA. They are issued for each airline. You are perfectly right, the pilot and the dispatcher can decide that "We are going to violate the law," just as anyone on the street can decide to run through a red light if they want to. The point, I think, is this: If they did decide, the CAA would know about it in a matter of minutes. We do have authority to make emergency suspensions for just that type of thing.

Mr. PYLE. An emergency suspension means that we take his right to his livelihood away by taking his ticket away from him, and he then loses.

Mr. YOUNGER. Who does that, the man in the tower?

Mr. PYLE. No. The safety agent.

Mr. YOUNGER. And he is at the airport all day long?

Mr. PYLE. He is with that airline. He may not be physically at that airport, but he is in control of that whole operation.

Mr. YOUNGER. I know, but that presents the question. That is something that somebody has to do instantly, not notifying them from Boston that there is a plane taking off in New York, and he is taking off in violation of the minimum requirement for that particular plane. If that condition exists, is there anyone on the field?

Mr. BOYLE. There is, Mr. Younger. The Administrator has delegated to each of his inspectors the authority to make an emergency suspension. It does not have to be the inspector assigned to the airline. It can be the one who is at LaGuardia. And, as a matter of fact, he is the one who would be told—I said minutes but I am not sure but what it would be seconds—that a particular airline was going to depart despite the fact that it was below minimums.

Mr. YOUNGER. And no major airport is without some inspector at all times, is that right?

Mr. ROGERS. Would the gentleman yield there for just one question?

Mr. YOUNGER. Yes.

Mr. ROGERS. Who would tell the inspector that there had been a violation?

Mr. BOYLE. I would imagine the first place we would know about it from would be the air traffic control tower.

Mr. ROGERS. Who is in there?

Mr. BOYLE. One of our men. He has no authority to tell an individual airline not to take off, but if he is aware of an unsafe condition,

such as this one that we are discussing, all he has to do is pick up a telephone to call downstairs to the air carrier inspector, who does have the authority and the responsibility to take care of this situation.

Mr. ROGERS. He is on the CAA?

Mr. BOYLE. Yes, sir; he is.

Mr. ROGERS. Where is the dispatcher?

Mr. BOYLE. The dispatcher is an employee of the airline. He is certificated by us, by the CAA.

Mr. ROGERS. He does not stay in the tower?

Mr. BOYLE. No, sir. He is in the operations office of the air carrier.

Mr. MACDONALD. Would you yield for a further question?

Mr. YOUNGER. Yes.

Mr. MACDONALD. Is it true that in some of the smaller airports, the man such as you describe, the dispatcher, or inspector, also works on the payrolls of some of the airlines?

Mr. BOYLE. The dispatcher is an employee of the airline.

Mr. MACDONALD. You are now talking about a CAA man. Does it happen that sometimes a dual capacity is held by one man?

Mr. BOYLE. No. A Federal employee cannot work for any private organization.

Mr. MACDONALD. Thank you.

Mr. YOUNGER. That is all on that line.

Mr. ROGERS. Would you yield for one further question?

Mr. YOUNGER. Yes.

Mr. ROGERS. I believe you said that some companies have the right to take off where the ceiling is lower than others do, and the visibility is less. How would this fellow in the tower know? Does he know which airlines are allowed to go where, and when?

Mr. BOYLE. He knows specifically, actually, what the takeoff minimums and landing minimums for each airline that uses that airport are. That is part of his job.

Mr. ROGERS. It is sort of second nature with him?

Mr. BOYLE. That is right.

Mr. ROGERS. What is his title?

Mr. BOYLE. Airport traffic control tower operator.

Mr. ROGERS. Do we have one of those in every one of the towers?

Mr. BOYLE. They are all operated by our people.

Mr. ROGERS. Is there one present always?

Mr. BOYLE. I think there are 1 or 2 exceptions. Mr. Thomas, head of air traffic control, may answer that specifically.

Are there any exceptions?

Mr. THOMAS. Yes, sir. There are a few small towers operated by aircraft factories and municipalities. In addition, the military also operate towers on their airbases.

Mr. BOYLE. They have their own employees at those towers, but they are, again, certificated by CAA before they are permitted to operate as air traffic control tower operators.

Mr. MACDONALD. Would that include such a small airport, say, as Martha's Vineyard in Massachusetts? Is the man in charge of that tower a CAA man? It just seems to me that I have flown in and out of some small airports.

Mr. PYLE. I do not believe there is a tower there. There is a radio station, and you can get information and advisory service. I do not believe there is a tower there.

Mr. THOMAS. I do not believe there is a tower there. To give a feel of this problem, there are approximately 180 Civil Aeronautics Administration towers in the United States. There are roughly between five and six hundred airports served by air carrier operations, so by no means is there a control tower at every airport used by an airliner.

Mr. MACDONALD. Thank you.

Mr. YOUNGER. Mr. Pyle, are you familiar with the International Transport Workers Federation magazine called Safety First, the civil aviation section? Are you familiar with that magazine?

Mr. PYLE. No, I am not, sir.

Mr. YOUNGER. In their November issue, and I would like to read this into the record, it states as follows:

> In America, two companies operating DC–6 aircraft permit a combination of pilot and flight engineer duties, which are carried out by pilots not holding engineers licenses. Another company operating DC–6 and DC–7 equipment, allows the pilots to act as flight engineers on alternate legs of a trip, and a kind of a musical chairs is played in flight. On certain other airlines, copilots have acted as engineers for a number of years, but must abandon such duties as captains vacancies arise. Hence, many become captains with little piloting experience, as such. The United States Civil Aeronautics Board in 1948 called for a specialist flight engineer to be carried on all transport aircraft in excess of 80,000 pounds maximum takeoff weight, and stated that in respect to constellations, Douglas' DC–6's and Boeing's 377's, "Despite the automatic devices which are available and installed in such aircraft, they have so many items calling for the pilot's attention, and are so complex in operation, that the pilot's ability to accomplish all duties imposed may at times be exceeded if provision is not made for a flight engineer. The flight engineer will contribute substantially to a reduction of pilot fatigue and resultant accident provoking sequences. The flight engineer is able to perform important duties and add to safety of flight. In particular, the flight engineer will relieve pilots of burdensome mechanical duties which, if required to be performed when the aircraft is being flown on instruments, when there are difficult navigational problems, when radio communications are erratic, or when the pilots are attempting to follow complicated traffic control procedures, and accomplish instrument approaches, would be exceptionally onerous."
>
> Unfortunately, the Board's directive has not been fully adhered to, as witness by the examples quoted in the opening lines of this paragraph.

Are you familiar with those cases at all?

Mr. PYLE. Mr. Younger, I would like Mr. Davis to answer that question, but I would ask, if you do not object, that the author and his affiliation be shown on the record.

Mr. YOUNGER. The what?

Mr. PYLE. The author of that article and his affiliation.

Mr. YOUNGER. This is an international organization. I do not see any author on it. This is put out by the International Transport Workers Federation.

Here are the officers. The president is Mr. H. John; the vice president is F. Cousins, and the secretary is O. Becu. Then the officer of the civil aviation section is a Frenchman by the name of LaPrez. I do not know who wrote the article. I was just wondering if you were familiar with it. It has to do with all these questions which concern us.

Mr. PYLE. This is a situation with which we are thoroughly familiar, and I think Mr. Davis, in the interest of brevity, can explain it better than I can.

Mr. YOUNGER. It just came across my desk, and I was interested in it.

Mr. DAVIS. Each aircraft, when it is certificated by us, is required to have a specific flight crew number in order to be flown in scheduled air transportation.

We determine from the complexity of the aircraft itself, the complexity of the duties of the pilots involved, as to whether, in our opinion, for safety, they should need a flight engineer as a third crew member, or a radio operator as a fourth, or a navigator as a fifth, and depending on the routes.

But sticking to the flight engineer, it has to do only with complexity of the duties of the flight crew aboard the aircraft. So we prescribe whether a DC–6 or whether a Convair or another type that is in scheduled operation shall have a 2-man crew or a 3-man crew, including the flight engineer.

When a flight engineer is required, the operator of that aircraft in scheduled operation may not operate unless that crew member is aboard, and properly certificated by us. We do not care whether he is a flight engineer as a mechanic or whether he is a flight engineer as a pilot. But he is the third man aboard and he is properly certificated.

Mr. PYLE. Mr. Younger, just to present one more thought, which I think gets to the point that this article is trying to make, he cannot get that certificate until he has demonstrated his knowledge and ability to act in the capacity of flight engineer.

It is on this basis that he gets his certificate, a complete knowledge of the equipment, its operating characteristics, his duties, and so forth.

Mr. YOUNGER. Do I understand that in the operation of a DC–6 it may be certificated for a different type of crew, depending on its route, or does a DC–6 have a definite crew, regardless of its route or number of passengers?

Mr. DAVIS. A DC–6 has a minimum crew of three, which includes the flight engineer. If they are over water, it might require a radio operator and navigator. But in no case would it be less than three, which includes the flight engineer, in scheduled operation.

Mr. YOUNGER. I would judge from this article that in these cases these 2 companies fly with 2 and not with 3.

Mr. PYLE. One of the reasons I asked about who the particular individual was that wrote that was that this may refer to foreign cases.

Mr. YOUNGER. No; it says "in America." This says in America there are 2 companies operating DC–6 aircraft who permit a combination of pilot and flight engineer, which would mean a 2-man crew instead of 3, as I read the article.

Mr. PYLE. The point he is trying to make, I think, is that there is a pilot sitting in the third seat acting as flight engineer. Our point is simply this: He cannot sit in that third seat unless he holds a flight engineer's certificate, which requires knowledge of the equipment, and so forth.

Mr. YOUNGER. This says "and not holding an engineer's license."

Mr. PYLE. This would not be permitted.

Mr. YOUNGER. That is the point I was wondering about. I was wondering why in any publication they could charge two American companies with operating in that manner. That is why I was wondering whether you were familiar with it.

Mr. PYLE. That is not a correct statement. Could I make, Mr. Chairman, a statement off the record on this point?

The CHAIRMAN. Yes, but this is an open hearing, a public hearing.

(Discussion off the record.)

Mr. PYLE. From the standpoint of the operation of an aircraft, a flight engineer has to be aboard, properly certificated, and there are no companies operating in the United States that do not meet this requirement. If there are, I sure want to know about them.

Mr. YOUNGER. I will leave you this magazine. I think it would be well for you to have them corrected or find out what companies they are referring to.

That is all.

(The following letter was later received from Mr. Pyle:)

DEPARTMENT OF COMMERCE,
CIVIL AERONAUTICS ADMINISTRATION,
OFFICE OF THE ADMINISTRATOR,
*Washington, February 20, 1957.*

HON. J. ARTHUR YOUNGER,
*House of Representatives,*
*Washington, D. C.*

DEAR CONGRESSMAN YOUNGER: I am writing to you in regard to the article—The Flight Crew Problem—which appears in the enclosed special issue of ITF (International Transport Workers Federation, London, England). Particular reference is made to the paragraph on page 6 which is outlined by inked lines.

For your convenience, the various specific statements in the above-mentioned paragraph will be quoted and will be followed by our comments. The statement is made that:

"* * * In America, two companies operating DC–6 aircraft permit a combination of pilot and flight engineer duties which are carried out by pilots not holding engineer licenses * * *."

We do not know of any evidence to support this statement. It is true that some air carriers use copilots in the capacity of flight engineers. However, these airmen are certificated pilots holding valid flight engineer certificates issued by the Civil Aeronautics Administration pursuant to the requirements contained in part 35 of the Civil Air Regulations, entitled "Flight Engineer Certificates." Therefore, these airmen are certificated for duty in either capacity and can be used as such provided they are currently qualified on the particular aircraft and meet such other specific requirements of the Civil Air Regulations as are applicable to the type of operation being conducted.

The article continues with the following assertion:

"* * * another company operating DC–6 and DC–7 equipment allows the pilots to act as flight engineers on alternate legs of a trip and a kind of 'musical chairs' is played in flight * * *."

It is entirely possible that some air carriers employ a system whereby certificated and qualified pilots, who are also certificated and qualified flight engineers, alternate duty assignments on various route legs or segments. As stated previously, the utilization of an airman on a particular duty assignment is entirely dependent on whether the airman is properly certificated and qualified in accordance with the applicable Civil Air Regulations.

The inference in the "'musical chairs' * * * in flight" reference is, in our opinion, unrealistic. We are not aware of any air carriers who are scheduling airmen, qualified as pilots and flight engineers, to serve in a dual capacity. It is possible that such airmen may be scheduled as a copilot for a trip, or series of trips, and then subsequently be scheduled to serve as a flight engineer for another series of flights. In other words, the air carrier schedules its crew members to a specific assigned duty, i. e., captain, copilot, flight engineer, etc., for a specific flight and the crew member is then responsible to carry out his assignment for that flight or series of flights. In this manner, the air carrier utilizes its qualified airmen in accordance with current needs. The use of qualified airmen in this manner can be likened to an apprenticeship whereby the assigned crew member gains invaluable experience in their normal advancement from

flight engineer to copilot and then on to their ultimate goal of checking out as captain. This procedure is of course applicable to those air carriers employing flight engineers with a background of pilot experience.

Another misrepresentation of facts is included in the article by the following statement:

" * * * On certain other airlines, copilots act as engineers for a number of years but must abandon such duties as captain's vacancies arise—hence many become captains with little piloting experience as such * * *."

This statement is without foundation. Some air carriers do require that their copilots qualify for certification as flight engineers. After proper training, certification, and satisfactory performance in that capacity, they are promoted to copilot according to the needs of the carrier. The normal sequence of progression, in those airlines employing flight engineers with a pilot background, is from flight engineer to copilot to captain. Therefore, the implication that an airman serving as a flight engineer could be promoted to captain without serving the apprenticeship as copilot is entirely unrealistic. Rigid adherence to the seniority system employed by the airlines would, in itself, preclude such a departure.

The long and arduous apprenticeship required of copilots is, in effect, a period in which these airmen gain valuable experience to eventually qualify as captain. These periods may vary from 1 to several years depending on many factors such as expansion programs of the air carriers and attrition rate of the captains. During this time, the copilots are evaluated on their capabilities as captain material. In the normal sequence of events, the experience requirements contained in the Civil Air Regulations for an airline transport pilot rating are in most cases exceeded by copilots, due to the extensive probationary and apprenticeship periods.

The remainder of the above cited paragraph, particularly the last sentence, is believed to be refuted in the preceding comments and we will, therefore, not comment further in this regard.

I trust that the above information adequately explains what we believe to be inconsistencies in the article appearing in ITF. If you desire further information on this subject, I will be pleased to furnish such additional information as you may resquest.

Sincerely yours,

JAMES T. PYLE,
*Administrator of Civil Aeronautics.*

(The article referred to in Mr. Pyle's letter is as follows:)

* * * In America two companies operating DC–6 aircraft permit a combination of pilot and flight engineer duties which are carried out by pilots not holding engineer licenses; another company operating DC–6 and DC–7 equipment allows the pilots to act as flight engineers on alternate legs of a trip and a kind of "musical chairs" is played in flight. On certain other airlines, copilots act as engineers for a number of years but must abandon such duties as captain's vacancies arise—hence many become captains with little piloting experience as such. The United States Civil Aeronautics Board in 1948 called for a specialist flight egnineer to be carried on all transport aircraft in excess of 80,000 pounds maximum takeoff weight, and stated that, in respect of Constellations. Douglas DC–6's and Boeing 377's, "despite the automatic devices which are available and installed in such aircraft, they have so many items calling for the pilot's attention, and are so complex in operation that the pilot's ability to accomplish all duties imposed may at times be exceeded, if provision is not made for a flight engineer. The flight engineer will contribute substantially to reduction of pilot fatigue and resultant accident-provoking sequences. The flight engineer is able to perform important duties and add to safety of flight. In particular the flight engineer will relieve the pilots of burdensome mechanical duties which, if required to be performed when the aircraft is being flown on instruments, when there are difficult navigational problems, when radiocommunications are erratic, or when the pilots are attempting to follow complicated traffic-control procedures and accomplish instrument approaches would be exceptionally onerous." Unfortunately the Board's directive has not been fully adhered to, as witnessed by the examples quoted in the opening lines of this paragraph. * * *

The CHAIRMAN. Mr. Rogers?

Mr. ROGERS. I have only one question.

In regard to the situation out in California—and this may be a reiteration, but if it is, please stop me—about the flight schedules for those planes that are being tested, are any arrangements being made, Mr. Pyle, to have those confined to a certain area for their testing activities?

Mr. PYLE. Yes; there are, Mr. Rogers.

We are now, by joint action of the CAA and the Board, working up a regulation which will become effective February 20. I will designate areas in which this flight-test activity will take place, or I will see that they take place over water, over sparsely populated areas, or in other areas that I approve.

In connection with the very valid point that Mr. Hale brought up, those areas will be so laid out that there will be a buffer zone to take care of the trajectory problem that we now face, quite obviously, with fast-moving aircraft.

Mr. ROGERS. How will you police that?

Mr. PYLE. Mr. Davis points out that this is one of the problems we are working out right now, and we will issue instructions to our regional administrators to handle it. I think, however, it is difficult to answer categorically, that this is the way it will be done. We will have to work out a procedure for each area.

The CHAIRMAN. I might say for the information of the gentleman, this morning they had a map on which they pointed out the various areas, and showed the designated places, and announced that as of today they would announce procedures by which the rules which the Board issued on February 5 would be carried out.

Mr. ROGERS. There is one other question I was leading up to in connection with the Grand Canyon incident.

If a plane takes off across the country, and in the great area which he could fly—and I understand he can fly any place he wants to after he gets off the air highway—will proper safeguards be set up so that he will be fully advised as to one of these testing zones being in that area?

Mr. PYLE. I would visualize, and this is a little premature, maybe, because we have not, as yet, come up with the final regulation, there will be certain designated areas which will be shown on the maps which are used by the pilots, so they will avoid these areas, similar to the restricted areas that are set aside for the military right now, gunnery ranges, target areas, and so forth.

Mr. ROGERS. That is all, Mr. Chairman.

The CHAIRMAN. Mr. Avery?

Mr. AVERY. Mr. Pyle, you stated this morning, I believe, that on the initial round-trip flight of Northeast Airlines from Miami to New York, there were three inspectors that flew on that flight, and then later one or the other on subsequent flights.

After they had made their original inspection, that did not discharge them of all responsibility as far as any future inspections on that flight, did it?

Mr. PYLE. On that flight?

Mr. AVERY. No; on subsequent flights.

Mr. PYLE. No, sir. There are regulations, and Mr. Davis may wish to add, that under their instructions they make spot checks periodically.

Mr. AVERY. Are those spot checks known to the pilot and the crew when they make them? Do they identify themselves when they get on the plane to make an inspection, or do they get on anonymously, and just make their report when they get back on the ground?

Mr. DAVIS. The usual procedure is to ride the jump seat between the two pilots, and they go to the airport with the pilots, or meet them there, go over their flight planning and schedule, and the plans for the whole flight, and ride the whole flight with the pilots.

On that type of an inspection, the pilots, of course, are aware of their presence. In other areas, we write a ticket and observe without them knowing it, and then make the report afterward.

Mr. AVERY. You have three types of inspectors. I believe you identified them as operation, maintenance, and electronics.

Mr. DAVIS. Right.

Mr. AVERY. Is there any variance between the frequency of inspections in those three categories?

Mr. DAVIS. Well, yes, sir. There is a little variance, because we have fewer of the electronics people than we do of the maintenance and operations, but that is the only reason.

Mr. AVERY. Just because of a shortage of personnel, do you mean, or they are not required?

Mr. DAVIS. A shortage of personnel is one. We are starting to increase our staffing now with some new appropriations we had for 1957.

Mr. AVERY. As a layman, again, but as one who has done some flying, I would think that lack of electronic inspectors might be kind of a soft spot. It would appear to me that that might be your basic inspection, as far as safety is concerned, of the whole structure.

Then into another field that we have not touched yet, and I will hurry on, we have been talking about commercial airlines here. There have been quite a lot of charters flown about. I do not want to go into it in detail, but do the same regulations, as far as safety regulations are concerned, apply to charter planes as to scheduled airlines?

Mr. DAVIS. No, sir. If the charter plane is not scheduled, they come under part 42 of the civil regulations, which describe the operating limitations and pilot requirements for that type of flying.

Mr. AVERY. Generally speaking, are they as restrictive, more restrictive, or less restrictive?

Mr. DAVIS. I think for the type of flying being done, it is about equal in safety.

Mr. AVERY. That is all, Mr. Chairman.

The CHAIRMAN. The same safety regulations apply, do they not?

Mr. DAVIS. Yes, sir, the same safety regulations. I am talking about the specifics of this type of operation.

The CHAIRMAN. You had in mind from the safety standpoint?

Mr. AVERY. All factors that would involve the safety restrictions. My question was whether they would be the same for the chartered plane as for a commercial airline.

Mr. DAVIS. Yes, sir.

The CHAIRMAN. Mr. Loser?

Mr. LOSER. I have nothing.

The CHAIRMAN. Mr. Alger?

Mr. ALGER. Mr. Pyle, I want to refer mainly to the testimony you gave this morning, but I would like to recapitulate just briefly to let you know what I am interested in.

I have a great respect for the existing rules and regulations, and this safety record, I think, is perfectly magnificent. Some of us take it for granted, I think. Airline safety is a marvelous thing. Northeast Airlines certainly had a fine record, with no fatalities.

First of all, when will we have the final results of the investigation, which we are just sparring with because we cannot get the facts? When will we have them? Do you know?

Mr. PYLE. I cannot answer for this, Mr. Alger, because this is under the Civil Aeronautics Board.

Mr. Davis, could you hazard an estimate on it?

Mr. DAVIS. They estimate the average investigation of an accident of this sort is about 6 weeks.

Mr. ALGER. We will be continuously interested, will we not, Mr. Chairman?

The CHAIRMAN. Yes.

Mr. ALGER. In your testimony today, we have two entirely different accidents, as I see it, one a testing accident in California, and the other a more routine takeoff in New York.

Thinking first of California, and your testimony beginning on page 14, you speak first of all on airspace, both controlled and uncontrolled. At the beginning, I want to cover some quotations on pages 14 and 15 of your statement.

> However, we are not yet prepared in terms of ground equipment, trained personnel, and airborne equipment to do away with the present regulatory system which permits aircraft to operate under good weather conditions on the "see and be seen" basis; the "visual flight rules."
>
> Even with our accelerated program, our traffic control facilities and system are simply not yet big enough.

Skipping down to almost the bottom of that page, "Additional radars, navigation and communications equipment, must be manufactured, installed, and integrated into the system."

On page 15, the second paragraph:

> Because the conduct of unusual maneuvers and the necessity for greater pilot preoccupation with instruments and controls may place severe limitations on the ability to see and be seen.

This is the general area I would like to question you about. Have you available for us or for the record a list of the various equipment now in use, radar and otherwise, which is used in controlling airspace which you mention here?

For example, you speak about the additional radars, navigation and communications equipment, and so forth. Is that information available?

Mr. PYLE. This information was furnished the committee, I think, Mr. Alger, at the time of the Grand Canyon accident. This is the 5-year plan which has now been compressed into a 3-year plan. We will shortly have an even more comprehensive program which we can lay before you as soon as it is available, and it shows exactly what we are doing, and the schedule of implementation.

This is not as yet completed. I do not know whether we have a copy of the 5-year plan here.

Mr. ALGER. I for one would like to study this. That is why I was hoping it could be in the record.

Mr. PYLE. We have this document here.

The CHAIRMAN. I think it would be more helpful for Mr. Alger to read the hearings of last September. He will find that this has been dovetailed into your 3-year plan.

Mr. PYLE. This now constitutes a 3-year plan, Mr. Harris. It has been compressed.

Mr. ALGER. That I will do, Mr. Chairman, as soon as I can.

Mr. PYLE. May I say, Mr. Alger, that I will be delighted to come up with any of our people and explain it to you, and to go through it with you. We feel it is our part to let you know about it.

Mr. ALGER. Like these questions, I will limit myself and do my homework. Do you feel that all the airspace should be controlled, for safety?

Mr. PYLE. I think the proper way to answer this, Mr. Alger, is that in certain areas we must move toward what we call positive control as soon as we can get there. This is our objective under this plan we are speaking of.

It is a matter of degree. There are certain areas that will come along that we will move into at a slower pace. There may be some areas that we never have to move into. But in high-density areas, such as around the Los Angeles area, the New York area, Dallas-Fort Worth, Chicago, St. Louis, we will eventually, probably, move into positive control at such time as we have the necessary equipment, the necessary trained personnel, and it does take a lot of people, and the necessary equipment in the centers to display this massive information around which we operate our system.

Mr. ALGER. You say on page 15 so correctly, "Pilot preoccupation with instruments." When a pilot is testing a plane as the DC–7B must be tested, and men are working with radar, tracking and leading in a radar experiment, it leads me to feel that the use of the word "negligence," as Mr. Hale mentioned earlier, might not apply in the same degree here.

The question I have is this: If the airspace is not controlled, how is a pilot going to see, with limited vision in an aircraft, and at the same time test that aircraft?

Mr. PYLE. We are in the process now, Mr. Alger, of taking care of it. Your point is excellent. It has to be worked out on the basis of setting up the proper traffic procedures and rules under which these areas will be used to prevent just this kind of thing.

Mr. ALGER. Is that the appropriate arrangement in the modification of yesterday?

Mr. PYLE. Yes, the rules that we will be formulating as a result of this regulation which has been issued by the Board. It is up to us to designate the manner in which these regulations are carried out.

Mr. ALGER. I think the public might get the wrong idea, might they not, if you say that the pilot must carry an observer? What can the observer see except forward and to each side? He cannot see down or back when testing an aircraft.

Mr. PYLE. This is one of the problems. There are several ways to solve it, as, for an example, in the case of the California incident, you will notice, if you recall, that they collided at 25,000 feet.

There probably would have been no reason why the F–89 could not have been at 27,000 feet and there would not have been a danger of a collision. That is one way of separating them.

Another way is an observer. Another way may be a chase aircraft who goes along and flies loose formation on the equipment to be tested and is in constant communication with the pilot and says, "You have to divert. You have to break off whatever you are doing to get out of the way."

There are many ways, and we will have to work out the proper way to solve the problem to which you refer.

Mr. ALGER. It seems to me that the regulation which was put out cannot possibly solve the problem entirely of eliminating human error. As I see it, human error cannot be eliminated in the way that regulation went at it.

That is what prompted the questions with respect to radar. I want to ask you further: Is it possible to equip aircraft with some type of radar warning devices, or is that prohibitive?

Mr. PYLE. I think the proper answer is that we are working in this direction just as fast as we can get there. We have not yet perfected such a device that will do this. We thought we were on the threshold of getting such a device, but unfortunately, things developed which made it technically infeasible. The airlines themselves are working full steam on this problem. This is a very useful approach, and a very significant one.

Mr. ALGER. Running quickly to the New York accident, I was told yesterday earlier by Mr. Matthews that there were no pieces of aircraft that could be found to ascertain whether ice was on the aircraft. This is true, I take it, as far as we know, because, he said, of the heat of the fire.

We all know the aircraft skidded 600 feet and there could be pieces. I wasn't satisfied with that answer, but I recognize more findings will come in.

Mr. PYLE. I am not prepared to comment, Mr. Alger, because I was not there at the time. I can assure you, however, that the CAB will look for everything and anything that will give a clue to this accident. If there are such pieces of material, the skin of the airplane or surfaces, and one thing and another that will give any clue of this kind, they will certainly be incorporated as part of their investigation.

Mr. ALGER. Do you know at this time if anything further has been said about the possibility of carburetor icing? Has that been brought up at all? I have been here for the entire hearing, but I do not recall that being mentioned. It was 31° on the ground.

Mr. DAVIS. I believe Mr. Matthews testified that the pilot stated that the engines and propellers were functioning properly at all times during his takeoff.

Mr. HALE. Let me hear that answer again.

Mr. DAVIS. Mr. Matthews testified, I believe, sir, that the pilot stated that the engines on his aircraft, and propellers were functioning properly throughout the takeoff, which would lead me to believe that there was no carburetor icing problem.

Mr. ALGER. He had even pulled back on the power.

Mr. DAVIS. He had reduced power at 140 knots.

Mr. ALGER. Mr. Chairman, I am very much interested in the further information that the investigators may find on this, because I think the New York information given this committee was not nearly as definitive as the questions of the committee members deserve in answers.

The CHAIRMAN. The investigation has not been completed. Until it is completed, the whole story cannot be given to us. After the investigation is completed, the Board will make its decision and issue its report, and we will have the picture then.

Mr. Hale?

Mr. HALE. Mr. Pyle, am I right in thinking that on Friday last the planes were taking off and landing at La Guardia in large numbers? I mean, the airport was not closed at all, was it?

Mr. PYLE. No, it was not, sir. We have a record here of the numbers of landings and takeoffs both prior to and subsequent to the accident.

Mr. DAVIS. Between the time of 1605 and 1822, which is 21 minutes past the time of takeoff of the airline in question, there were 37 landings and 9 takeoffs.

Mr. HALE. Was there any plane scheduled to take off which failed to do so on account of the weather, as far as you know?

Mr. DAVIS. That information I do not have, sir.

Mr. YOUNGER. Mr. Chairman, may I comment on that?

If you recall yesterday, we asked those same questions, and they did not have all of the information. We asked them to get for the record the number of takeoffs, the number of cancellations, and the reason for the cancellations during that whole time. They were going to furnish that for the record. I think that is true.

Mr. DAVIS. That is right, sir.

The CHAIRMAN. That information has not yet been furnished?

Mr. DAVIS. No, sir.

Mr. ROGERS. May I ask another question?

The CHAIRMAN. Mr. Rogers?

Mr. ROGERS. Mr. Pyle, as an aviation expert, if you had the information given to you that this plane was taking off and that everything was functioning right, but it hit the ground, what would be your first impression as to a cause for a thing like that?

Mr. PYLE. Mr. Rogers, I will not attempt to dodge your question. I will just have to say I do not think it would be proper for me to answer it for the reason that this, being a public hearing, could be taken out of context.

Mr. ROGERS. I was going to say, if you want to, answer it off the record, but what I am talking about is that something happened that cannot happen.

Mr. PYLE. There are some good looking gentlemen in back of me that might misunderstand my statement. The point is, we have a responsibility to the airline and the pilot not to appear to put any blame or inference as to what happened.

Furthermore, it would be only an educated guess on my part. So if you do not mind, I would prefer not to answer that.

Mr. ROGERS. Have you any indications of violations of the law?

Mr. PYLE. No, sir, we have nothing at this point that indicates that any law, regulation or procedures of ours or the company were violated.

Mr. ROGERS. I have one other question. In the history of aviation, do you have any precedent that would indicate that a plane was operating properly and everything was going along fine, except that it fell? I mean, contrary to all principles, engineering principles and everything?

Mr. HALE. Would the gentleman yield?

Mr. ROGERS. Yes.

Mr. HALE. The gentleman wants to know if you know of any other completely inexplicable accidents?

Mr. PYLE. There are some planes that just disappeared over the ocean, for instance. We have never known exactly what happened. There is no way of finding out.

Mr. MACDONALD. Is it not true, sir, that this is one of the inherent dangers in aviation? Everything can be functioning perfectly one second, and two seconds later an explosion can be had?

Mr. PYLE. I would prefer that we do not call it an inherent danger of aviation, because I cannot believe that it is dangerous. I have been in it too long. I do not believe that this is the case.

I think as years go on, we get more and more information, Mr. Macdonald, and I do not believe there is an element of danger provided. The personnel, the company, our inspectors, we all work toward achieving this safety. I think the important thing is that there be a positive approach to get this job done properly and safely. This is the answer to the problem.

Mr. MACDONALD. I quite agree with that, sir. I will just close by asking this one question that Mr. Matthews answered in the affirmative yesterday.

Having been aware of the safety precautions that had been taken, being aware of the perfect functioning of, at least as reported, mechanical parts of the plane, would you, as the pilot did, have taken off under those circumstances?

Mr. PYLE. I would certainly have done so.

Mr. MACDONALD. Thank you.

The CHAIRMAN. Since everyone else, I believe, has had an opportunity, I will take just a few minutes, if you do not mind.

In the first place, with reference to the California incident, I said day before yesterday in the hearing that it appeared to me that there was dereliction. I think at this time I can only amplify that statement by reiterating that I personally feel, from what information we have obtained, that there has been dereliction.

These hearings as of the day before yesterday and today, particularly the day before yesterday, showed that the rule the Board issued on Monday, the 5th, was a rule proposed and under consideration since 1947. If it was a good rule, and you found out after you had a tragic incident over an area of this type, and then you moved in immediately, it seems to me that there was dereliction in that rule not having been adopted years ago.

Furthermore, I think there is dereliction in the fact that the DC–7 was in that particular area on a testing flight because it had not been shown that that plane was on its way into the airport.

It may turn out that it was. In the second place, the operators of the military aircraft were derelict in maneuvering, whether you call it normal or unusual maneuvering, over that area. It is no answer to me

that they were over a sparsely populated area right at that moment, which is 5 miles from a heavy, densely populated area.

That is precisely the way I feel about what we have so far regarding the California incident.

If there is anything that the Congress has failed to provide, then we are derelict in not doing it. Because you have said and they have said that they have all the authority they need.

I think you do so far as the commercial operation is concerned, but I sometimes question whether you do as to the military, where they conflict with the operation of commercial planes in various areas. And I think that should be given some consideration.

But as far as the Northeast incident is concerned, I have some very grave questions in my mind.

In the first place, you can talk about planes going in or not going in, and coming out and not coming out. I happened to come aboard an Eastern plane on that night from Miami, Fla. Its destination was New York. They cancelled that flight here in Washington. And they had all the passengers get off it. It was a little after 9 o'clock. Now, there was some reason for that, or it would not have been canceled.

It, of course, is a matter of fact and well known that weather conditions were very bad that day around LaGuardia. The fact that this plane was to take off at 2:45 and there was some reason it did not take off until 6:01 that evening, indicates there was something decidedly wrong in the mechanical operation or something else in connection with that plane. The fact that those passengers were held there from about 3 o'clock or shortly thereafter up until this thing happened is a most unusual thing to me. And this question came up the other day: What right does the passenger have, under a situation like that, when he wants to take off, if he is going to be kept there for 3 hours? As the Administrator, perhaps you can answer that.

Mr. PYLE. Subject to correction by the General Counsel, Mr. Chairman, I have no ability to control the question of what happens to the passenger. This is a matter that is the Board's responsibility, as to the service that is accorded by the airline, whether they are on time, whether they are giving good service. My responsibility is to see that it is a safe operation.

The CHAIRMAN. I know that. You administer the program. That is your responsibility.

Mr. PYLE. That is correct, sir.

The CHAIRMAN. All right. What right do you give a passenger, when he is on a plane, and the plane goes out to the end of the runway and sits out there for three hours or a long, long, time, and particularly when they take them back into the maintenance department and keep them back in there

Now, when does the passenger have the right to request that they get off the plane?

Mr. PYLE. I can only answer from the standpoint of an individual citizen. I have no control over that particular part of the airline operation. This is the point I am trying to make, Mr. Chairman. I have no control over this.

The CHAIRMAN. Well, who does?

Mr. PYLE. This is the Civil Aeronautics Board, in my opinion. Now, I may be wrong. Perhaps Mr. Boyle would straighten me out.

Mr. BOYLE. Mr. Chairman, I agree with Mr. Pyle that the extent of the obligation of the carrier to its passenger in terms of service that it is rendering to the passenger, is the problem of the Civil Aeronautics Board.

I might go a little further and just say as a matter of general law it would be my opinion that so long as the passenger's request to be let off the airplane is made under reasonable conditions, the airline might subject itself to various forms of liability if it refused him. That would be completely aside from whether or not the Civil Aeronautics Board regulated the matter at all.

The CHAIRMAN. But it raises a very serious question, in my mind, which I had not necessarily thought of before, and that is: When a person boards a plane, how long may they be required to stay in that plane? Can they keep them out there all night, or all day, or indefinitely?

Mr. HALE. That would be false arrest.

The CHAIRMAN. That is false imprisonment, it seems to me.

Mr. BOYLE. That was what I had in mind when I said the airline, assuming the passenger's request to be made under reasonable circumstances, might subject itself to liability as a matter of general law entirely aside from whatever rule the Board might choose to adopt in the matter.

The CHAIRMAN. I had a statement I wanted to make, but I would not dare to make it, in view of what was said this morning, because it is too serious a matter and there is too much involved for me to even suggest it, and I would not do it.

Mr. MACDONALD. You are in charge of the safety program, as I understand it. That is the best you can draw a line between the CAA and the CAB. Sometimes it gets very confusing to the people up here. I do not know about you, but to us the line of demarcation sometimes seems to be a rather thin one. But if you are concerned with safety, and the passenger sees something in the plane that he feels is going to interfere with his safety in that flight, wouldn't you people take cognizance of the request made for the safety of a passenger?

Mr. BOYLE. Yes. We have in the past received complaints from passengers which have been the source from which we have found serious violations, safety violations, by air carriers and others, which have resulted in the imposition of substantial penalties as safety enforcement actions.

Mr. MACDONALD. Would you not take cognizance of requests to get off an airplane for safety reasons?

Mr. BOYLE. If we were present, we surely would.

Mr. MACDONALD. I did not hear Mr. Derounian's statements, and I do not know if the proper jurisdiction is this committee on some of the statements made concerning requests of somebody to get off a plane. Certainly you would have to have a good deal of intercommunication to be able to take care of some irate husband who shows up at an airplane and says, "I want my wife to come off that plane."

I can see any number of complications if you were to follow that line of thinking. But certainly if a passenger on a plane wants to get off for reasons of safety, I do not see why you people would not be concerned with that.

Mr. BOYLE. We would be concerned. I think that what Mr. Pyle said is that we do not have the authority or responsibility to regulate that aspect of the relationship between the carrier and the passenger that is carried. That authority, I believe the Congress has delegated to the Civil Aeronautics Board in the Civil Aeronautics Act, and if this area needs regulation it would be the Board which has the authority to do so.

The CHAIRMAN. If I may proceed, then, to end this phase of it, the Board has issued no regulation covering that situation.

Mr. BOYLE. To the extent of my knowledge, sir, they have not.

The CHAIRMAN. All right. Then, proceeding further, before we get to Mr. Derounian's statement, which I will take up a little later: There has been a great deal of talk on the issuance of the certificate. I told the Chairman of the Board that I did not ask him the reasons why the Board issued the certificate to Northeast. I did not feel that that was my prerogative, to ask a person who is sitting in judgment on something why he did so and so, but I was asking him what factors did the Board consider in the issuing of this or any other certificate. And later he wanted to give the reasons why that certificate was issued; which was all right, and I did not object to it. But the fact remains that this is a very prolific route. A certificate was issued, and they started service on the 9th, I believe, of January. It was either the 5th, 9th, whichever it was. And they had only two planes to operate, both of them DC–6's, I believe.

I asked how many flights a day, how many trips a day. They do not know.

It seems to me that would be one of the very first things that the investigators would find out with reference to the equipment and the condition of the equipment, how extensively it has been used.

Now, it is not enough to me that somebody got on the outside and walked around and looked at the propeller and the rest of the plane while they were down at Miami, Fla., on that kind of overnight inspection, and neither is it sufficient to me to say that there is an inspection when they get to New York, that somebody would walk around it and go in and sweep it out.

But the very fact that only two planes were operating on a heavy traffic route like this, where the demands are great—I know they are great, because I tried to get one out of here last week, myself, and tried to get one back.

Now, that seems to me something that would raise some question in the mind of anybody who is going to look into it. And so I asked the Chairman of the Board this morning: What factors do you take into consideration? Do you take into consideration the equipment? How old is this plane? It is a DC–6. Obviously that plane has been in use several years. All DC–6's are, are they not?

Mr. PYLE. All DC–6's have been in operation for several years. That is correct.

The CHAIRMAN. That is true. Now, it seems to me that the type of equipment, the maintenance of that equipment, is something that the investigator should take into consideration; and particularly in view of the fact that a plane was to take off at 2:45, and for some reason it was not ready to go. They knew it was not ready to go. The first thing, they had to sweep the snow off of it. And then they moved it off the ramp, moved it down to the end of the runway.

And they stayed down there for a while. And they knew that something was wrong, because they had to take it and move it back into the maintenance department. That is what the facts showed, did they not?

Mr. PYLE. I believe so, Mr. Chairman.

The CHAIRMAN. With all the passangers in it.

Now, after all that maneuvering it had to go back in for deicing. Now, in deicing what do you use?

Mr. DAVIS. Sir, they use a specially prepared solution, and they have a trade name for it. It is called Mistol. It is a combination of glycol and alcohol, a trade name of a product they buy, which is prepared especially for removing ice from that type of surface.

The CHAIRMAN. Yes. Now, suppose their solution was low, and they did not have enough of it, and suppose they used alcohol. Would it make any difference?

Mr. DAVIS. I do not know, sir, whether it would or not.

The CHAIRMAN. Would you know, Mr. Administrator?

Mr. PYLE. No; I would not, sir.

The CHAIRMAN. Would any of your people know?

Mr. DAVIS. As far as safety is concerned, I do not think it would, because the alcohol will remove the snow and ice.

The CHAIRMAN. Yes; but what else would it leave on the plane?

Mr. DAVIS. It evaporates rapidly, and I do not think it would leave anything on there that would be dangerous.

The CHAIRMAN. Somebody mentioned that.

Mr. DAVIS. Yes, sir; I read that in the papers.

The CHAIRMAN. And during all this time, there were other planes that took off, as you said a moment ago.

Now, that is a clear indication that it was not necessarily the weather that was keeping this plane from flying, was it?

Mr. PYLE. In what respect, Mr. Chairman?

The CHAIRMAN. Other planes were taking off.

Mr. PYLE. That is right. They had the icing problem, and the pilot quite correctly thought he ought to have the ice removed, which he then proceeded to do.

The CHAIRMAN. Well, did it take that long to de-ice?

Mr. PYLE. Yes, sir. That is a very large wing, as I am sure you are aware. It is not an easy process to do.

The CHAIRMAN. Now, in your statement you mention the inspection, beginning with the flight of January 9. Now, you say: "In addition CAA inspectors have spent over 160 hours in the inspection of flight and ground training by Northeast Airline in the past 2 months."

That is a lot of inspection, is it not?

Mr. DAVIS. Yes, sir.

The CHAIRMAN. Why did you find it necessary to have such close inspection of the Northeast Airlines' operation?

Mr. DAVIS. Sir, the usual procedure when an airline establishes a new route, plus new equipment, is the same, whether it be Northeast, American, TWA, or any other. The problems involved are large. They are complex. The training programs have to be developed. The maintenance systems on that new aircraft have to be developed and processed. Pilot training, flight engineer training, stewardess training—all of the crew have to be specifically trained and the main-

tenance people trained, going to school, and it is our usual procedure to work with the airline at all times during that particular critical period before they start operation.

The CHAIRMAN. Even though they had only two planes to start operating with?

Mr. DAVIS. Yes, sir. It does not make any difference whether it is 1 or 20. The problem is the same.

The CHAIRMAN. Well, what kind of inspection of their flight program could you have had a month before the start?

Mr. DAVIS. Well, several months before they began, or further ahead than that, the airline has to start planning that operation. Northeast was planning this operation a year ago. I mean, based on the hope that they would get the certificate. But they were starting their plan to be ready if they got it.

The CHAIRMAN. Now, back to where the plane got out, you heard Mr. Derounian's statement.

Mr. ALGER. May I ask something right along the line of what you are asking: Were there any repairs on the nose section of that airplane? Was anything done to that aircraft other than de-icing?

Mr. DAVIS. I do not know the answer to that.

Mr. ALGER. We do not, of course, know the authenticity of Mr. Derounian's statement, but a passenger made a statement.

Was there anything else? Somebody here should know, surely.

Mr. PYLE. We could ask our inspectors, but they possibly would not know.

This will, of course, have to be brought out as a part of the investigation that the CAB conducts. But we will ask our men just to be sure.

Mr. KEELER. No, sir. I have not seen the records. The CAB has them.

Mr. MOSS. Were there any other planes scheduled for takeoff at LaGuardia that were delayed in takeoff during this comparable period?

Mr. PYLE. I think the answer to that, Mr. Moss, will be furnished by the CAB as a part of the material you have already asked of them. I myself would not be prepared to answer that question at this point.

Mr. MOSS. You have no record of that?

Mr. PYLE. No, sir.

Mr. MOSS. You do not permit passengers to stay aboard a plane of this type while they are loading gasoline?

Mr. DAVIS. Yes, sir.

Mr. MOSS. You do?

Mr. YOUNGER. I have been on hundreds of them and have watched them.

Mr. MOSS. On the original takeoff?

Mr. YOUNGER. On the original takeoff, the gassing in place. I have seen them gas a lot of planes while a passenger on the plane.

Mr. LOSER. Mr. Chairman, as a new member of this committee, I want to express my deep appreciation to you as chairman of the committee for the very searching statement you have made with reference to this accident in the East.

I have sat here and listened to these witnesses, and I am driven to the conclusion that they have indulged the presumption that the air carrier has performed everything required by law that they should do,

and that every man in connection with the plane has made the proper inspections. No information is available as to whether or not that has been done. So it seems to me that these gentlemen here are moving around trying to—I am sure they are doing it forthrightly, but the responsibility is being shifted from shoulder to shoulder. I do not know, as to anybody connected with the business, what their specific responsibilities are. And it just seems to me that every effort is being made—and maybe properly so; I do not know—to refrain from telling this committee anything that would shed light on the cause of this tragedy.

The conclusion, from what I have heard, is inescapably the fault of the carrier, some sort of negligence. And nobody has put their finger on it.

How long it will take to conclude this examination, I do not know, but it seems to me that we are just sitting here with the answer that we will conclude next week or next month. We will advise you when we come up with the answer.

Now, whether that will happen or not, I do not know. But I do thank the chairman for his searching statement of a while ago, which pinpoints the difficulty, it seems to me.

The CHAIRMAN. I thank the gentleman for his observation. And I am sure the Administrator of the CAA and the members of the Board will take your statement under consideration.

Now, there are two other things that I wanted to mention here as a matter of consideration, in trying to get to the bottom of this, before I make my final statement.

This has already been referred to, and I do not know the man, and I would not do him any injustice for anything in the world, or anything else. But down in my State—and I do not want to draw any comparisons, nor do I want anybody to misunderstand any comparisons—when a person is caught driving while under the influence of alcohol, he is subject to a very heavy penalty. When he is caught the second time, he has his license taken away from him. And he does not commit the act the third time until he has overcome the problems that he had, and, under certain conditions, has got reinstated.

You have a pilot here who testified, a man who is 50 years old. That is not old, I can tell you for sure, because I am in my fifties. But we heard from a pilot, 50 years old, who has had two previous accidents.

I do not know whether Northeast was under heavy pressure to get someone, and whether this was the man or somebody else should have been the man. That was their problem. And under our system they are entitled to that privilege.

But do you not think that your investigators should take into consideration the record that this pilot had, as you investigated this problem?

Mr. PYLE. I can answer that completely in the affirmative, Mr. Chairman. I completely agree. And, furthermore, I can assure the committee that this is one of the first things that struck me when I read the report. And we have initiated a nationwide study on this very point, because I think it is a very serious one, and I think we have to get to the bottom of this particular situation.

In other words, is there an accident proclivity? I think that is the word I want.

The CHAIRMAN. One of the notes I had the day before yesterday was to make some comment on the laxity in connection with personnel.

I do not want to set myself up as a judge, you understand, because I am not an expert on it. But I think that there are a lot of things wrong with our program that have got to be corrected.

One of them is that I think you have got to use more strict regulations and requirements as to personnel.

I have the feeling, and this has been brought to me by people who are more experienced in the field, that the companies themselves, as well as the people in the administration of the program, are not restrictive enough in their requirements as to personnel particularly, as to those who are in charge of these planes. You might say that might sound pretty harsh, but every time a plane takes off they have the lives of the people in those planes in their hands. And you go over to the Pentagon and you find out just what restrictions they place on their lives, and how quickly they will act if they find anything wrong.

Notwithstanding that, there have been more Air Force accidents throughout this world, in my opinion, in the last several months, than there should be. And that is another subject we are going to inquire into in connection with this whole matter.

I introduced a bill just a few days ago. I do not think you people are going to be too quick to approve it. And I do not think the airline pilots are going to be too quick to approve it, either. But it is proposed for the purpose of setting up a program for medical research affecting the personnel who operate these planes.

Now, I would not say that this man is not an excellent pilot. I assume he is, from his experience and background. But the excellence of anyone for anything does not make any difference. If he has a natural fault, as Mr. Alger has said, that cannot be corrected. It seems to me that is a very, very serious point and should be considered.

Mr. PYLE. Mr. Chairman, if I could just comment at this point, I am in complete agreement with you, and if you recall I mentioned in the early part of my statement and again reiterate: This is what we are going to do.

The CHAIRMAN. Well, I feel complimented by that statement. I intended it when I made it to be taken in the way you explained it this morning.

Now, further explaining the matter, one of my colleagues on this committee told me of an incident that occurred some time ago affecting personnel. He was on this particular plane that came into the airport. He knew enough about it to know that the landing gear did not drop down and catch. Nevertheless, that plane went in. A very serious accident came near happening.

He says himself he should have reported it to you.

Mr. PYLE. I wish he had.

The CHAIRMAN. He recognizes that. But nevertheless, knowing the people, he reported it to the company, some people he knew in the company.

Now, in finding other things about it, the investigation showed that when that plane landed, and it was so reported, a pebble got up in the landing gear and caused it to give way.

Now, I do not say that was deliberate, but if it is true, somebody was certainly derelict in the investigation and report. That is what

I had in mind, among other things. Somebody has got to take a firm position with the companies and everybody else. And the same pilot kept operating, and within a given time the pilot crashed and killed himself and 20 other people.

I am saying that the operator of a plane, an automobile, a train, anything, where the lives of people are involved, ought to be under certain strict requirements. And I think you are going to have to take a look at that program throughout all of these companies.

Mr. PYLE. Mr. Chairman, not wishing to interrupt, again I agree. I would like to point out that one of the reasons that Mr. Davis is here in Washington right now is to put in this program and to carry it through forcefully. He has my complete support, and he is going to do a job on it. And it is just along the line of what you are talking about.

The CHAIRMAN. That is very encouraging. I do not say this because I have any particular person in mind. I have the greatest sympathy for everyone engaged in it. They are doing a great job. But I think we should know that they can do the job, and if we find they cannot, the company had better take them off. Because we are not dealing with these planes that fly 110 miles an hour any more. It is almost sure death this time, the way they operate.

Now, let me ask you this question: You have in these planes, when they start to take off, automatic warnings if anything is wrong. Is that right?

Mr. DAVIS. I do not understand the question, sir.

The CHAIRMAN. Well, in a plane, when it starts to take off, if there is something wrong, if the door is not closed or something goes wrong with the equipment, there are automatic warning devices?

Mr. DAVIS. Yes; a red light in front of the pilot, for instance, for doors that are not closed properly.

The CHAIRMAN. And you have all of that?

Mr. DAVIS. Yes, sir.

The CHAIRMAN. Well, a door—is that the only thing it applies to?

Mr. DAVIS. No; the fuel consumption or flow. If the engines are malfunctioning, you have warning lights.

The CHAIRMAN. If the ice on the wing might affect it, does it still give a warning?

Mr. DAVIS. No, sir.

The CHAIRMAN. In other words, the ice on the wing would have nothing to do with a warning that there is something wrong?

Mr. DAVIS. No, sir.

Mr. PYLE. In other words, the proper answer, I think, is that there is no indication in the cockpit as to the icing condition.

The CHAIRMAN. That is something the pilot himself has got to determine?

Mr. PYLE. If you will remember, you have often seen flying where maybe at the end of the runways there are lights that flash out along the wing to look at. That is the purpose of those particular lights, ice lights, to look out and see if there is ice on the wing, if there is anything that would disturb the flow of air over the wing. This is determined by visual inspection, in other words.

The CHAIRMAN. You heard Mr. Derounian's statement this morning?

Mr. PYLE. No, sir, unfortunately I was not here.

The CHAIRMAN. Well, I am sorry you were not here.

Mr. AVERY. Mr. Chairman, I wish that could be read from the record. It would be very interesting.

Mr. ALGER. On this same subject, could I ask a question relative to the icing?

Does not carburetor icing occur generally under the same conditions that external icing occurs?

Mr. PYLE. No, sir, not generally.

Mr. ALGER. Would you say under those conditions that day carburetor icing might have occurred?

Mr. PYLE. Yes. sir.

Mr. ALGER. Is this plane equipped with carburetor heaters?

Mr. PYLE. It is.

Mr. ALGER. We know, of course, if those carburetor heaters were ineffective or were not used, for whatever reason, and carburetor icing conditions were possible, those carburetors could clog quickly enough to actually cause loss of power in a takeoff run and climb; is that correct?

Mr. PYLE. That is correct. I think the point, though, Mr. Alger, is this: At the top of the DC–6, if you have seen them, there are the BMEP gages, which indicate the exact amount of power that is being delivered from that engine and propeller combination. If one of those had been malfunctioning, the power would then have been reduced. And I am just assuming, because we do not have the facts, and I have to again apologize to Mr. Loser——

Mr. LOSER. That is perfectly all right.

I am going to wait for you, though.

Mr. PYLE. I hope we can please you. We will get it done as fast as we can.

The point being that they would not have reduced power if those indicators had indicated that any one or all of those engines were not putting out sufficient power.

Mr. ALGER. That follows.

Mr. PYLE. And you would not get sufficient power if your carburetors were icing, or even beginning to ice.

Now, I am answering your question backwards, the point being that, in my opinion, there was no icing condition in the engines.

Mr. ROGERS. Will you tell us what Mr. Derounian said?

The CHAIRMAN. We miss our colleague, Mr. Priest, and we regret his loss, but since by providence he did have to leave us, I think that we have a worthy successor in Mr. Loser.

Mr. LOSER. Thank you, Mr. Chairman.

The CHAIRMAN. I will try to paraphase what Mr. Derounian said and then state an assumption, and I would like to ask you a question.

Mr. Derounian reported that a member of the family of three aboard this plane, in the person of the son-in-law brought them out, and they boarded the plane a little after 2:45. I think maybe he said three o'clock. About that time, the plane stood on the ramp, I think about twenty minutes, using that as an example—a little while—and they moved out to the end of the runway. They stayed out there for a good while, say forty minutes. They went into the shop. While they were out on the runway, a good long while, since

an hour or more has passed, the son-in-law went to the company agent and asked him what was wrong. And he assured him that nothing was wrong.

Since they kept setting out there, he asked him if he could take his relatives off. They told him that the plane was about to take off.

After staying a good while, several minutes after that, the plane came back in. And it went into the shops.

Getting more concerned, the son-in-law went back to the company man, and asked him if he could take his family off. The reply to him was "No," that the plane was in flight. He could not do anything but leave. And as the plane came out one of the ladies, a passenger, testified, that one passenger read the sign, as they tried to get off the ground, at the end of the runway: "If you can read this sign, it is sure death."

Now, that was generally the statement that was made. Then, of course, the engine on the right, or two engines, went out, and it veered to the left and crashed.

Now, assuming that this report was true, would you say that there should be some action taken insofar as the pilot of that ship was concerned and the company dispatcher?

Mr. PYLE. Could I answer it this way, Mr. Chairman: If all the facts as stated in the statement are true, it probably would have to be. But I think this is the point where we have to wait until all the facts are properly brought out, and again with apologies to Mr. Loser, and then if at that point it is indicated that there was dereliction of duty, and there was maladministration, that there was incompetency on the part of the pilot, at that point we crack down. But we cannot do so until such time as we are absolutely sure of our facts.

The CHAIRMAN. I know that is true. But that is what I say. Under the authority you have, and your responsibility, assuming that the description that Mr. Derounian gave this morning, which is in the record—assuming that you find that those facts are true, then it is your duty to really crack down, is it not?

Mr. PYLE. That is absolutely correct, sir.

The CHAIRMAN. Well, I am like Mr. Loser now. I am going to be waiting.

Mr. MACDONALD. You say you are going to crack down. I thought you said a few minutes ago that you had no control and you wanted none over requests made to get off planes.

Mr. PYLE. This is not part of our problem.

Mr. MACDONALD. It is certainly part of the problem as pointed out, maladministration, et cetera.

Mr. PYLE. Mr. Macdonald, then maybe my answer is incorrect in this respect. I have no control over what happens to the passengers. Privately, I wish I did. But I have none under law. However, if such a thing as the two engines going out or something was wrong on the airplane that caused this situation, this is what I am talking about.

Mr. MACDONALD. You are talking about mechanical failures.

Mr. PYLE. Yes, or failure to follow procedures.

The CHAIRMAN. Or facts which were known or certainly should have been known at the time they tried to take off.

Mr. PYLE. Not necessarily, because it might have occurred as Mr. Alger pointed out—icing can occur. But he would not have pulled off his power if icing was in process of occurring. He would have put on his carburetor heat right away. He was bringing up his gear, bringing up his flaps.

Mr. MACDONALD. Would it not be unlikely then that he would follow that course of action?

Mr. PYLE. This is way I qualified my statement.

Mr. YOUNGER. I just want to correct one thing. Your duty is solely in the certification of the dispatcher and the pilot. Is that right?

Mr. PYLE. That is one of our duties.

Mr. YOUNGER. That is one of your duties, in addition to the safety of the plane. So that if the facts in the investigation are as Mr. Derounian pointed out, your recourse is your certification of the dispatcher as well as the pilot; is that not true?

Mr. PYLE. So that there is no chance for any further exposure due to incompetency.

The CHAIRMAN. Now, one other thing. This all leads to the conclusion that the companies are going into this coach business. They are competing. They are certainly out after it, and I do not blame them for that. That is part of American business procedure. But there is a certain way of overdoing it.

Now, as I have observed the operation of this coach program, they are virtually taking over the airports. They are trying to get the people, through all this advertising, to keep coming in. And it seems to me we may be getting into the unfortunate situation that they are treating human beings like animals rather than human beings. That is, of course, for the purpose of developing this business, because it is profitable. People are being given inducements to fly. But when you get that, the question is: Are the companies themselves trying to overdo it with the kind of equipment they have?

And what I could not understand was that I rode down in the same plane, on which I paid first-class fare, to Miami, and came back the same way on a coach fare—an identical plane. I do not know why the difference. The only thing about it was that I did not get a free dinner. And I do not know. There may be a perfectly good reason for that. But there is no reason for herding a hundred people in on these coach planes just as if they were animals, wherever they go, and treating them the same way, because they are out to get all they can get out of them. Now, I hope the companies themselves will take note of this, too.

I am for the coach fare, but I am for doing it in a manner that people will be treated decently in the operation.

And to go right along with it is a matter that you have a lot to do with, and that is the operation of these airports. One of these days we are going to start out with an investigation of the operation of these airports and the service, and I think when we do we will start out right here at Washington. That is the worst operated airport, I think, in the United States. The service out there—and I do not know whether it is because you do not have the facilities or cannot arrange to provide for them, or whether or not it is a deliberate thing on the part of somebody to force this long-drawn-out controversy over whether we are going to have a Burke airport or a Friend-

ship airport or what to do about a second airport. I hope that is not right.

I have been out there looking around over the place myself, and I am sure other members have, too, and I would not be surprised before too long if I do not set up a committee that is going to have the specific duty and responsibility to go into the operation of these airports and find out what kind of service the people are receiving from them. You just go back to that baggage place there. It is dangerous to take a child back there, with all those planes coming in. You get stepped on, trampled on, the way they gang up around there.

I do not do it myself. I stand back until they kind of get cleared out. And by that time another plane comes in from a different company, and they crowd the thing up again.

I am just giving you the benefit of some of my own observations.

Mr. PYLE. I think they are very sound, Mr. Chairman.

The CHAIRMAN. And I think there are a lot of things that need to be cleared up around here.

Mr. Wolverton?

Mr. WOLVERTON. I have learned from these hearings that if anything goes wrong with a plane, the pilot makes a report of it when he comes in from the flight.

Mr. PYLE. That is correct; yes, sir.

Mr. WOLVERTON. Does the pilot make a report to any agent of Government or to the company with respect to the conditions that kept this plane from taking off on scheduled time at 2:45 and not leaving until 6:02?

Mr. DAVIS. Yes, sir.

Mr. WOLVERTON. To whom is that report made?

Mr. DAVIS. That is made to the company.

Mr. WOLVERTON. Is it a written report?

Mr. DAVIS. Yes, sir.

Mr. WOLVERTON. Have you or has anyone under you had an opportunity to observe it as yet?

Mr. DAVIS. No, sir.

Mr. WOLVERTON. Would it be appropriate or even proper for this committee to have brought before it what report the pilot made in writing at the time that he was held up from taking off?

Mr. DAVIS. No, sir; it would not be inappropriate. I am sure the Board will have that information as part of their investigation.

Mr. WOLVERTON. Well, according to the statement that was made by Mr. Derounian this morning, there were evidently several happenings in connection with this plane with reference to attempting to take off, and then changing their minds and coming back, and so forth.

I am afraid that I could not state it in the detail in which he gave it. But it is my recollection that there were several incidents with respect to it where it seemed as if the plane was about to take off, and then after a while did not take off, and came back, and then another opportunity for it to take off seemed to be available, and then that was changed, and it came back.

I think it would be a very interesting thing for us to have what was said by the pilot at the time. Not after the accident, but at the time that this delay was taking place. What records the company

has as to why the plane was delayed in taking off on schedule. Not what somebody says now, after the event, but what somebody said at the time.

Was it necessary for that pilot each time that he went out to the runway, and assuming it was more than once, to make a report to somebody as to why he did not take off?

Mr. DAVIS. I am not sure of that, sir; whether each time he would have to make a report as to why he did not take off on schedule, or why the delay.

Mr. LOSER. Would the gentleman yield at that point?

Does not the pilot, when he speaks to the control tower—is that not recorded? If he said anything at all, do you not have a written record of it?

Mr. DAVIS. Yes.

Mr. LOSER. You do, do you not? Has anybody examined it?

Mr. PYLE. The CAB is charged to examine that. That will be part of their investigation.

Mr. LOSER. But that has not been done as yet? You do not have any information as to what the pilot said to the control tower on the way down the runway or while in flight?

Mr. PYLE. Those records are impounded by the Civil Aeronautics Board.

Mr. LOSER. You could not answer that. You do not know. You have not heard?

Mr. PYLE. That is right.

Mr. LOSER. But they are available and will be presented here?

Mr. PYLE. Yes, sir.

The CHAIRMAN. That was testified to on Wednesday, and we were told that they had not completed all of their investigation, which is a fact.

Mr. WOLVERTON. You see, what I am driving at is this. It is very important what someone says at the time of an accident, immediately. And what I am trying to get at is: What reason was given by this pilot to somebody, either a Federal or company official, as to why he was not taking off? He could not have gone out that runway prepared to take off unless he had been cleared by the control tower; is that right?

Mr. DAVIS. That is correct.

Mr. PYLE. That is correct.

Mr. WOLVERTON. All right. Now, after he went out and did not take off, would he report to the control tower why he did not take off or why he asked to come back?

Mr. PYLE. He would probably request permission to return to the hangar.

Mr. WOLVERTON. Would he give a reason?

Mr. PYLE. Not necessarily.

Mr. WOLVERTON. Would the man in the control tower or any Federal official be interested to know why he was coming back?

Mr. PYLE. The control tower is only interested to be sure that he is not blocking the runway or the taxiway, and that he, the pilot, has a clear way to go to get to wherever he wants to go.

Mr. WOLVERTON. My dear sir, there were 101 human lives on that plane. And it was given the privilege of taking off. And after a

delay of some time, 30 minutes, 40 minutes, or whatnot, he does not take off. And he comes back. Would there be nobody that would be interested to know why he did not take off?

Mr. PYLE. The answer, Mr. Wolverton, is "No." The pilot is responsible for the operation of that aircraft, under our rules and criteria. The control-tower operator is too busy to find out why the airplane does not want to go off. All he is in charge of and responsible for is to get it to wherever that pilot says.

If he wants to go to the hangar, he is authorized to taxi to the hangar, with no reason given.

Mr. WOLVERTON. Well, if he is too busy to do it, is there no other Federal official there that has time?

Mr. PYLE. To check as to why that airplane does not take off?

Mr. WOLVERTON. Yes.

Mr. PYLE. I think the specific answer at that particular moment is "No," Mr. Wolverton.

Mr. WOLVERTON. Well, to me that seems to be a very shortsighted way to look at it from the standpoint of public safety in a matter so precarious as the operation of an airplane. And I just cannot conceive of a plane putting out and then coming back without somebody, whether it was their duty or not, making inquiry or making an explanation of it.

Now, the statement that was made by Mr. Derounian this morning, as I remember it, was that he had heard something about this relative who was told that it came back to have the ignition fixed. Something about the ignition. I remember that being said.

The CHAIRMAN. I think the statement was that the officer on the plane reported that it went back to the shop to get the ignition fixed.

Mr. WOLVERTON. Now, will that show up on a sheet, either Government or company?

Mr. PYLE. Yes, it will.

Mr. WOLVERTON. Will it show that any Federal official passed on it, after it had been, we will say, supposedly corrected? Was there anyone to pass on it to say, "Yes, it is now safe to go"?

Mr. PYLE. The answer is "No," Mr. Wolverton. The mechanic who made the necessary "fix" is a mechanic certificated by the Government. He is given the responsibility, when he signs off on that airplane, that that airplane is airworthy.

Mr. WOLVERTON. Well, just have this in mind. Here is a company with a great deficiency of facilities to carry out their duties under the certificate that had been granted. So much so that this plane came in from Miami at 1 o'clock and was to turn around and go back again at 2:45.

Now, under those circumstances, when something happened that kept it from taking off, would it not, or should it not have been the duty of somebody to have passed on that other than the company itself?

Bear in mind that it is the company that is doing this coming in and out business almost by turning around and starting back again. They have a lot of passengers. They are in the business for money. And they are anxious to get back and forth as fast as they can.

It is one of those circumstances that it does not seem to me ought to be left to a company official or a mechanic who has been certificated

to say that they thought it was all right. Somebody of a disinterested character ought to come into the picture some place, where there are 101 lives at stake.

Now, I won't pursue that any further.

The CHAIRMAN. May I say to my colleague on that that he has pursued it diligently and to very great concern, but I think it is a matter of fact that over the years we have developed a procedure whereby that responsibility is placed on the company. It has always been that way. It is now. I assume if it was changed it would take congressional action to do it. And certainly with reference to the additional personnel that would be required to do it and the money that would be necessary, it would be a change of policy altogether. And the gentleman may be entirely correct that that should be done, but nevertheless we do not have that procedure now, and we have never had it, and I think that when the company fails to assume that responsibility that is when you ought to clamp down on them and clamp hard.

Mr. PYLE. And I can only say, "Amen," Mr. Chairman.

Mr. WOLVERTON. What the procedure may be to accomplish what we have in mind I do not know. But I do know that something ought to be done about it. The fact that we have not done it all these years to me is not the answer to the problem if that in any way is the cause of this accident.

It takes accidents, sometimes, to open our eyes to see what should be done. This is a progressive matter and the rules and regulations of civil aviation have been based on experiences gained. And a lot of that experience has been gained through accidents. Now, this is another accident and it gives us an open door to pursue a different thought than maybe has been pursued before. And it is because of that that I feel so strongly that we are very lax in what we expect of the Government itself in making these examinations.

Personally, I am not content to leave it to the company officials to the extent that we do, any more than I am willing to leave it to them in the control tower, a company official there, to say whether or not their plane should take off or not. There are areas in which the plane people are probably required to be the judge and should be permitted to be the judge. There are other areas in which there should be a Federal agency. And I think this question of examination, inspection, and all that sort of thing, is an area in which we can give very careful consideration.

Now, I would like to ask one further question, and with that I will be finished.

Do you have any record in your department that would give the history of this particular plane? And when I say "history," I mean from the time it came out for use and received its initial certificate. And what experiences there have been with that particular plane; and that would show if and when there had been an overhauling of it and to what extent there had been an overhauling of it, or if there had been any deficiencies found in it that required work to be done. In other words, a complete history of that plane.

I would like to know from that history whether or not something in the past may have happened that this is only another outcropping of but in a more serious way than had developed previously, but nevertheless having a relationship to it.

I would like to see the kind of a data sheet that either you have or the company has that will tell us just what has been done with an airplane in the way of making certain that it is in an operating condition.

Do you have that in your department, or are you dependent on the company for it?

Mr. PYLE. Mr. Wolverton, we have the record of the registration of the aircraft and who owned that aircraft. The company itself maintains these records according to certain specific standards that we set up. And this is a slight exaggeration, but practically there is a history on every nut and bolt in that airplane, every component part.

Mr. WOLVERTON. The company has it? Or you have it?

Mr. PYLE. No, sir. The company has it.

Mr. WOLVERTON. Do you have a duplicate of what the company has?

Mr. PYLE. No, sir, we do not.

Mr. WOLVERTON. Then you are absolutely dependent on whatever records the company wishes to show you; is that right?

Mr. PYLE. It is subject to our inspection at a moment's notice.

Mr. WOLVERTON. I am surprised, if it is important for the company itself to keep a record as essential as it is, as to a machine being in perfect condition, that the Government itself does not at least have a duplication of that. I am surprised that you have to go now, in an instance such as this, to the company, to get a report from it, as to what was done in the past.

Mr. DAVIS. May I make an observation, sir?

The regulations require the company or the owner of an aircraft to keep those records. The regulations also require that company to make them available to us at any time for inspection.

Mr. WOLVERTON. My dear sir, would it not be possible, as a part of that rule that requires them to keep it, to require that they make a duplicate and file it with you at the time, so that you would have in your own files and would not be dependent on what is handed to you, under circumstances like these, by a company?

Mr. PYLE. The answer, Mr. Wolverton, is "Yes." This would be possible. It would serve no useful purpose. I think this is the point.

Mr. WOLVERTON. Well, I do not know whether it would or would not.

Mr. PYLE. Well, perhaps we disagree on this point.

Mr. WOLVERTON. Maybe we do, but if so it is because you do not look at it the same way.

Mr. PYLE. That may be possible.

Mr. WOLVERTON. I am looking at it from the standpoint now of an accident that has happened. And you cannot tell me, as a Government official, just what if any examination has been made of the engines, when it was overhauled, and what was necessary to be done.

We would have to call the company in here and say, "Give us the records of that plane."

Mr. PYLE. No, sir, the records are impounded and in the hands of the Civil Aeronautics Board for the very purpose you speak of.

Mr. WOLVERTON. They were impounded after this accident; is that correct?

Mr. PYLE. That is right.

Mr. WOLVERTON. How long after this accident?

Mr. PYLE. Oh, maybe an hour afterward.

Mr. WOLVERTON. They are available then at the airport?

Mr. PYLE. That is correct; at the company headquarters.

Mr. WOLVERTON. I cannot see why it could not be filed in your office instead of theirs.

Mr. ROGERS. Suppose they did not give you all the records. Suppose they withheld some. How would you know they withheld them?

Mr. PYLE. Every minute of that airplane's history is inscribed on that, and the moment there is something that does not tally up, when the pages go from 8,100 to 8,200 hours, if there is no history on that intervening time, the company has to produce it.

Mr. ROGERS. Suppose then that they worked on the plane and just showed it as a waiting period on the ramp, or the apron, and it does not show up that the mechanic worked on the plane at that time. Would there be any way you could check against that?

Mr. PYLE. The pilot or the inspector enters what has to be done on that airplane. Then a mechanic must sign it off at the proper number of hours. There is a complete control.

I can assure you, gentlemen, there is a complete control of what happens to that airplane.

Mr. ROGERS. That is all under the supervision of the company?

Mr. PYLE. That is correct.

Mr. ROGERS. And you have to depend upon their good faith in order to keep them from falsifying the records?

Mr. PYLE. I would not say we are gumshoe artists, but we are in there all the time checking them to be sure that they are doing just what you are speaking of.

Mr. ALGER. In this regard, is not the form 1 or the chart of the airplane's log kept in that airplane open to scrutiny by anybody at any moment, including the CAA people who rode on that airplane five different round trips, as I got the picture, just before this particular accident? And that form was there, and that pilot probably made notations whether or not there was anything wrong with that plane after the flight when he came up from Miami. And that form was in that airplane at that time, was it not, and kept in that airplane?

There is a log, if I am not misrepresenting this, open in that airplane, open for all of us to see, that cannot be withheld, just as I am sure there is a life history of that airplane and the engine hanging on the wall of the hangar.

Mr. PYLE. That is correct.

Mr. ALGER. I do not know why you gentlemen have not said this. I have been waiting for 2 days now to hear somebody say that there is actually a form chart of the engine for everybody to see. Because Mr. Wolverton and others of the general public might not know this, that the CAA has ready access to that, just as the log of that particular airplane, with any single engine difficulty, any single light that goes out, any symptom of malfunctioning, even if it is at the imagination of the pilot—he writes that down and puts his John Henry on it. And if that is not done the pilot can be suspended.

Mr. PYLE. And furthermore, perhaps it is because I am too close to it and do not explain it adequately, but there must be a signoff by a qualified mechanic that he has cured this discrepancy to his satisfaction. And he is certificated by Government as one who knows. If he ever makes a mistake we take his ticket and he loses his livelihood.

Mr. ALGER. For 2 days I thought Mr. Wolverton's consternation was over the question of where the record was on this aircraft and what the situation was. And I would think that between the form 1 or whatever you call it on the aircraft plus the mechanic's form that is in the files of the company—that would tell the whole story. And you have those records now?

Mr. PYLE. Well, the CAB does.

Mr. ALGER. Ten minutes before takeoff, those records could have been yanked by the CAA if they had wanted to.

Mr. PYLE. That is right.

Mr. WOLVERTON. I have in mind some other Government regulations with respect to inspections to promote safety. I see it in the elevator that I go up in, in the apartment building where I am, every day, where it has been marked.

The CHAIRMAN. Mr. Hiestand has been standing by. He wanted to read a statement for the record. I see he is going to have to go. And he has asked to put the statement in the record.

You certainly have that privilege, Mr. Hiestand.

Mr. HIESTAND. Thank you very much, Mr. Chairman. I appreciate your courtesy.

Mr. WOLVERTON. I notice that every day I get in that elevator, there is a certificate that it has been examined by an official and that it is safe.

Mr. PYLE. There is a similar certificate in each airplane.

Mr. WOLVERTON. Signed by a Government official?

Mr. PYLE. Signed by a Government official.

Mr. WOLVERTON. That is the original, is it not?

Mr. PYLE. That is the original.

Mr. WOLVERTON. How many times do they go over that to determine whether it is still in condition or not?

Mr. PYLE. Mr. Davis can answer it more quickly, I think, Mr. Wolverton.

Mr. DAVIS. The examintion of the airplane is continuous on our part, and the certificate is renewed each year.

Mr. WOLVERTON. So it is examined once a year; is that right?

Mr. DAVIS. Well, no, sir. It is examined more often than that. But the certificate itself, which is an indication of its airworthiness, is renewed each year. And at that time it does take a complete inspection of the aircraft.

Mr. WOLVERTON. Is there any record made of when the official inspections are made?

Mr. DAVIS. Yes, sir.

Mr. WOLVERTON. Where is that kept?

Mr. DAVIS. That record is kept by the company and also by us. There is an entry of the examination of the aircraft, and it is sent in, and is retained in the aircraft record.

Mr. WOLVERTON. Would it be possible for us in this particular instance to have the benefit of what information such an inspection sheet would give?

Mr. DAVIS. Yes, sir.

Mr. WOLVERTON. I think it would be very appropriate to have it.

Mr. AVERY. Mr. Chairman, you touched on a subject a while ago, and I did not realize we were going into this operational phase. It seems to me, Mr. Chairman, if we are going to explore the operation

of airports, it might be well to explore the whole concept of airport responsibility.

You mentioned, I believe a while ago, that there was such keen competition among the airlines for passenger traffic that they had lost sight in some degree of passenger service and possibly other factors that a public carrier should be responsible for.

I am wondering if that same line of analysis would not carry over into financial responsibility for these airports.

Now, the railroads, for instance, and other public carriers, are entirely responsible for maintaining their own facilities, but because the aircraft industry has grown up rather recently, and we were all wanting to get it well on its way, this concept has developed that the public is responsible for all terminal facilities.

Now, we might further testify that if the air-route fares had been reflecting increasing costs, but I believe I am right when I say commercial airplane fares have not increased since the original schedule was set up.

Now, the airlines are proud of the fact, and rightfully should be, because we all realize they have had increasing costs. But at the same time they are furnishing preferential service to the public, and I am not sure, in line with that preferential service, if the persons using that service should not carry more of the financial responsibility that is required to furnish it, instead of the general public.

So, in summary, Mr. Chairman, if a committee were selected to look into this field of airport operations, I wonder if you might not think it proper for them to expand this exploration to the point of making some study of what the airlines' justifiable financial responsibility is in the operation of public air terminals.

The CHAIRMAN. Yes; I think that would be a very interesting subject to explore. I am sure there are a lot of people that would like to have that information.

Mr. ALGER. Just one short question.

I am still puzzled and baffled by this takeoff at the New York airport. Like a terrier I am going to keep working it over, because I know we do not have all the answers. I do not say Mr. Mathews misrepresented to us, because I know he would not do so intentionally. But when you take off and raise your flaps and pull off your power, it is important in what order you do it.

I just asked you a question a while ago about carburetor icing, and you pointed out, very logically, that pulling power back would indicate that there was not carburetor icing, else the pilot would have noticed the fall of the power and certainly would not have reduced power. Which is logical. But I also know it is equally logical that no pilot reduces power unless he visually notices he is well above the ground, that is, visually, or by instrument, his altimeter, he is well clear of the ground. Otherwise you do not reduce power. Yet the testimony we have from Mr. Derounian's client, or whatever the circumstances were, was that they hit the ground almost immediately; leaving me to wonder whether they ever really got airborne at the sufficient or altitude of the airplane. This makes a lot of difference.

I know you do not have all the information to give us. I do not think, though, that the information that has been given us thus far is accurate, because that particular information coming from some-

body inside the cockpit does not strike me as correct. Does it not sound odd to you? Or am I missing something?

Mr. PYLE. I think the answer is simply this, Mr. Alger. We do not have all the information. Maybe the information we have is not entirely accurate. We have been trying to give you as much as we ourselves know at this stage of the game, and I do not think we or anyone else can base our final conclusions on what we know now.

We may find the circumstances entirely different when all this mass of material is collected together and put in a package.

Mr. ALGER. Do you not think it odd that you would reduce power unless you are well clear of the ground?

Mr. PYLE. Well, I could not agree with you more. But I do not know what the circumstances were. We do not know the position or altitude of the airplane. This makes a lot of difference.

Mr. ALGER. Did this testimony not come, through, from the men flying it? That is what we had. That is what Mr. Mathews gave us, the position, the altitude of the plane, even to the fact that he reduced power.

Mr. PYLE. My observation had to be made without the benefit of his testimony. I had to be elsewhere when he was testifying.

Mr. ALGER. That is, of course, true. I just assumed you, as a pilot, were abreast of what he had told us.

Mr. PYLE. No; I had to be over in the Senate.

Mr. DAVIS. May I make an observation?

Mr. ALGER. Please do. I was thinking out loud, hoping you would inform me.

Mr. DAVIS. There is one thing concerning the loss of the two engines on the right side of the aircraft and then that the aircraft turned to the left.

Mr. ALGER. True, that does not make sense.

Mr. DAVIS. Well, the aircraft would turn to the right if you lost two engines on the right side, because the power is on the left, and it would push it in the opposite direction. So that is the fallacy in that statement.

Mr. ALGER. You see the fallacy in the statement I mentioned. I am quoting from what Mr. Mathews said came to us from those in the cockpit. I am just saying in my own way probably what Mr. Loser has said. I am very bewildered by this information. I know you are giving us what you can. But we have been given conflicting statements.

I am saying this because in my small way, Mr. Chairman, I would like to make my small contribution and that is it. There is something bewildering technically in the information that has been given us thus far.

Mr. PYLE. It bewilders us as well, Mr. Alger, and that is why we conduct theses investigations so closely that we drive aside this foggy area in which we cannot at the moment find out what the circumstances were.

I can assure you, with the crew being alive, and with enough witnesses both in the plane and on the ground, we will come up with an accurate analysis of what went on in this accident. And at that point we are then in a position to take corrective action.

Mr. ALGER. And, as you would say, "Amen."

The CHAIRMAN. The fact remains that if the plane took off at 6:01, that was right, is it not?

Mr. PYLE. This, I think, we are pretty well agreed on.

The CHAIRMAN. And the plane crashed——

Mr. PYLE. Within about 15 seconds.

Mr. DAVIS. About 18 seconds.

The CHAIRMAN. Well, you do know what time the plane left the ground, and you know what time it crashed. That is definite.

Mr. DAVIS. That is definite.

Mr. PYLE. This, I think, we can pin down.

The CHAIRMAN. How high ordinarily will a commercial plane be when the gear is retracted and the flaps go up and the power is reduced

Mr. DAVIS. The gear is started up immediately after the aircraft is clear of the ground and the climbing speed is proper. At the time that the aircraft reaches 125 knots and is at about 200 feet, that is the time when the flaps are started up. It depends a little bit on the configuration, the weight, and the conditions.

The CHAIRMAN. Two hundred feet off the ground?

Mr. DAVIS. Yes, sir, but it varies with conditions. The power is reduced usually at a speed of about 140 knots. I am talking now of the DC–6. At this point it could be at 400 feet.

Mr. ALGER. That is well up in the air, Mr. Chairman.

The CHAIRMAN. Well, you can figure out how long it takes for a plane to go 400 feet and then come back down, even if it falls.

Well, anyway, those are problems the investigators of the Board will try to resolve, and I do want everyone to understand that we have asked Mr. Pyle a great many questions this afternoon that are actually out of the prerogative of the CAA, and which belongs to the responsibility of the Civil Aeronautics Board in connection with the investigation.

Again, I want to compliment the Board and your Administration, Mr. Pyle, for your cooperative efforts at working together, which is absolutely necessary if you are going to be successful in this program.

We want to thank you for your appearance here. You may think that this has been a sort of a working-over process, but please do not accept it as such. If it were not for the concern of the members of this committee and many Members of the Congress, in fact every Member of the Congress, and the people, this hearing would not of course have been held. But we are concerned with the safety of aviation, because in this field we have experienced greater growth and progress than has ever been known by any other form of transportation in the history of mankind. Consequently, the public of the United States as well as other parts of the world are tremendously concerned.

We want to give to you and to the Board our entire cooperation, and if there is anything you need in the way of additional authority that would be justified and reasonable, you will have no trouble getting it from Congress.

Again we thank you and those associated with you for your attendance here today and your presentation.

And in the words of Mr. Loser, we will be waiting.

At this point, the statement of Congressman Edgar W. Hiestand of the 21st District of California will be included in the record.

(The statement referred to is as follows:)

STATEMENT OF HON. EDGAR W. HIESTAND, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. Chairman and gentlemen, the tragedy of the recent air crash in the 21st Congressional District of California cannot be overemphasized.

It has alerted the entire Nation to the consequences that can result when we fail to make proper safeguards against the flight testing of aircraft, both military and civilian, over congested areas.

In the new regulations which the Civil Aeronautics Board imposed as a result of this tragedy we can take a certain measure of satisfaction that they who died there shall not have died in vain. But regulations alone are not enough. They must be strictly enforced.

This committee, and the entire Congress, must be certain that the Civil Aeronautics Administration has sufficient authority not only to enforce these regulations, but also to impose and enforce new ones that it deems proper for the protection of our citizens in populous areas.

To this end I have introduced a measure which is now before this committee—House Concurrent Resolution 107. It is written to express the sense of the Congress that regulations should be written to provide for airspaces away from congested districts for test flying, and also that if the Civil Aeronautics Board does not have adequate authority to prescribe air traffic rules reserving airspace that the Board should submit recommendations for appropriate legislation to the Congress.

The new regulations promulgated by the Civil Aeronautics Board should obviate part of the resolution, that concerning the writing of new regulations.

But the second part of the resolution, that part which would put Congress on record as asking for the submission of proposed legislation if such is necessary, still in my opinion warrants action by the committee and by the House.

I should also like to submit to the committee at this time the suggestion that proper enforcement of the new regulations may entail additional funds for the Civil Aeronautics Administration.

If a need for additional funds should arise, I feel that the individual members of this committee, as well as the committee as a whole, will look with favor upon the passage of authorization and subsequently supplemental emergency appropriations, provided such appropriations are reasonable in amount.

It would be folly to call for the enforcement of regulations without giving the Civil Aeronautics Administration sufficient funds to carry out the committee's requirements.

Since the tragedy on January 31, I have received a number of communications from persons and public bodies in the district which I represent. Almost all of them express the opinion that some action should be taken to tighten the restrictions upon test flying.

Representative of these communications are a resolution which was passed by the Los Angeles City Council on February 1, and a letter from the president of the Los Angeles Board of Education.

With the chairman's permission, I should like to quote from the letter to me from Mrs. Edith K. Stafford, president of the Los Angeles City Board of Education:

"Needless to say, our board of education was shocked as a result of the tragedy which occurred at our Pacoima Junior High School on January 31, 1957. As president of the board, I found it necessary to visit the scene soon after the accident occurred. Only a few feet in distance separated the location of the impact of the plane from the auditorium where approximately 850 children were engaged in graduation exercises. The numbers who were injured and killed could have been gravely augmented had the plane struck the auditorium. It is fortunate that the skillful leadership of the principal and teachers prevented panic from seizing all involved.

"It is our earnest wish that every effort will be made to accomplish the best possible controls to eliminate danger to persons on the ground in these highly populated areas where schools must be placed."

Mrs. Stafford enclosed the letter of the board to the Civil Aeronautics Board, which is already in your record.

I have every confidence this committee will take the necessary action.

The CHAIRMAN. The committee will adjourn until Thursday morning next, at 10 o'clock, at which time Under Secretary Wormser of the Department of Interior will be with the committee to take up again the matter of petroleum and related problems.

(Whereupon, at 5 p. m., the hearing was adjourned until 10 a. m., Thursday, February 14, 1957.)

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